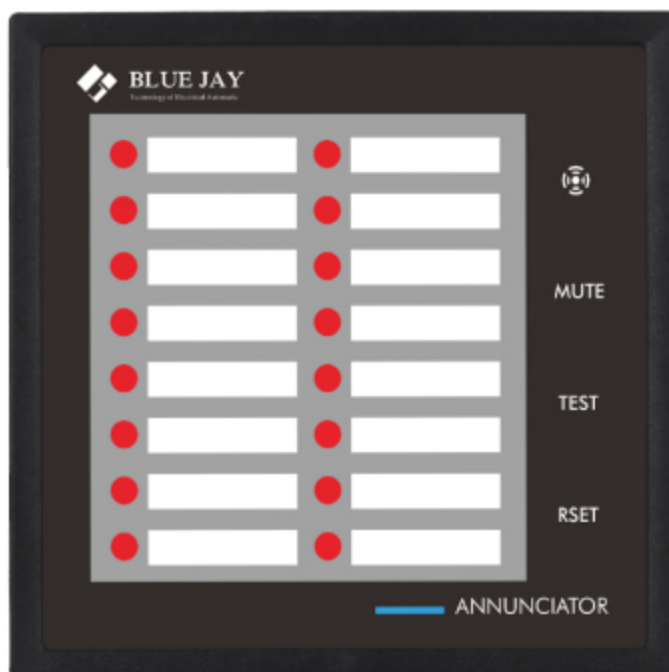


ALM-CH16 Fault Annunciator

User Manual



Version: 1.10

Revision: 2025.1

Read me

When you use ALM-CH16 Alarm annunciator, be sure to read this user manual carefully, and be able to fully understand the implications, the correct guidance of operations in accordance with user manual, which will help you make better use of ALM-CH16 Alarm annunciator, and help to solve the various problems at the scene.

1. Before the meter turning on the power supply, be sure that the power supply within the provisions of the instrument;
2. When installation, the current input terminal must non-open, voltage input terminals must Non-short circuit;
3. Communication terminal (RS232/RS485) is strictly prohibited to impose on high pressure;
4. Be sure the instrument wiring consistent with the internal system settings;
5. When communicating with the PC, instrument communication parameters must be consistent with the PC.



- **Please read this user manual carefully**
- **Please save this document**

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1.- SUMMARIZE

ALM-CH16 fault annunciator are installed on the cabinet panel. They are simple, compact and can improve wiring efficiency. They are universal alarms suitable for power control and monitoring systems. The alarm uses a highly reliable MCU to monitor external status in real time. When an abnormality occurs, the corresponding indicator light on the panel lights up, the buzzer sounds an alarm, and the alarm relay responds quickly.

The alarm can be muted, reset, tested, etc. by pressing buttons. The product supports optional RS-485 digital interface communication (using MODBUS-RTU communication protocol).

FEATURES

- Flashing alarm lights remain until confirmed;
- Customizable or replaceable alarm light labels;
- Reliable passive relay contact outputs;
- Centralized alarm output for multiple signals;
- Self-fault alarm with normally closed contact;
- Sound alarm interface supports external devices;
- Flexible alarm confirmation logic with real-time updates;
- Modular design for easy installation and maintenance.

APPLICATIONS

- Power generation and distribution systems;
- Industrial manufacturing and production facilities;
- Oil, gas, and petrochemical processing plants;
- Data centers and server farm operations;
- Railway, aviation, and maritime transportation systems;
- Heating, ventilation, and air conditioning (HVAC) systems.

2. - TECHNICAL PARAMETERS

Parameter	Details
Operating voltage	110VDC, 220VDC, 110-220VAC/DC, ($\pm 10\sim 15\%$)
Rated power	$\leq 8W$
Fault signal inputs	16 channels
Response time	$\leq 100ms$
Flashing frequency	$> 1Hz$
Relay outputs	3*contact capacity: 5A@250VAC, 0.5A@110VDC, 0.3A@220VDC
Panel protection level	Front: IP54; Rear: IP20
Communication	RS485/Modbus RTU
Indication method	LED indicator or illuminated text panel
Insulation performance	2.5 kV AC RMS 1 minute, between input / output / case / power supply
Operating environment	Temperature: $-20^{\circ}C \sim +60^{\circ}C$; Humidity: Annual avg. $\leq 75\%$, max $\leq 93\%$
Wiring terminal	0.2...2.5mm ²
Working cycle	100%
Installation method	Panel mount
Hole dimensions	96x96 mm

3. - INSTALLATION AND START-UP



The manual you hold in your hand contains information and warnings that the user should respect in order to guarantee a proper operation of all the instrument functions and keep it in safety conditions. The instrument must not be powered on and used until its definitive assembly is on the cabinet's door.

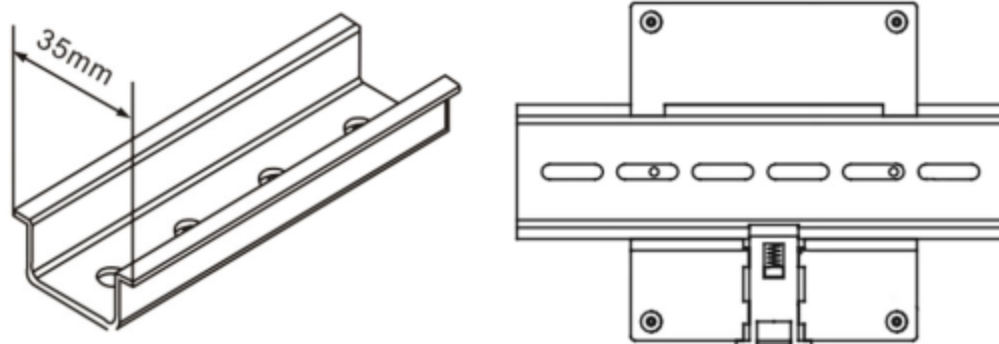
If the instrument is not used as manufacturer's specifications, the protection of the instrument will be damaged.

When any protection failure is suspected to exist (for example, it presents external visible damages), the instrument must be immediately powered off. In this case contact a qualified service representative.

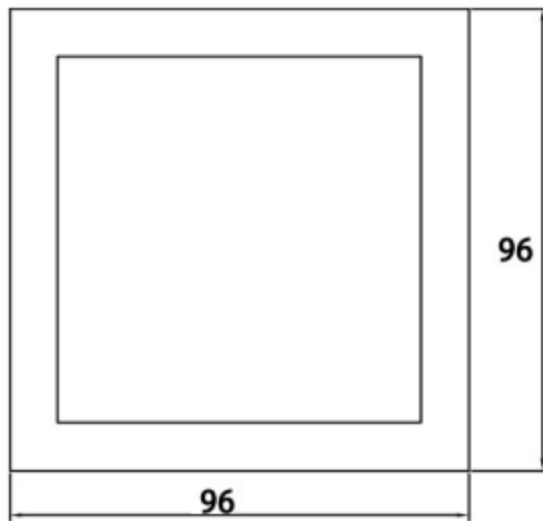
3.1.- Installation

Mounting

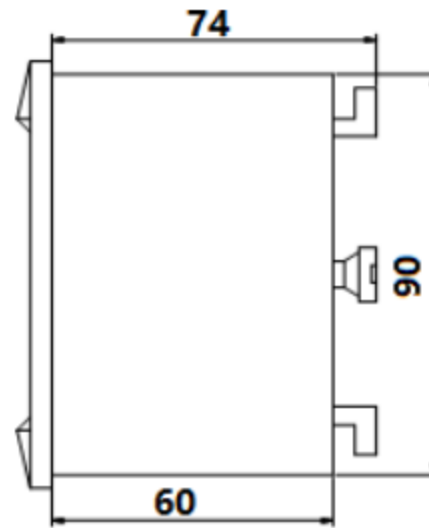
Instrument is to be mounted on 35mm Din-rail. Keep all connections into the cabinet. Please note that with the instrument powered on, the terminals could be dangerous to touch and cover opening actions or elements removal may allow accessing dangerous parts. Therefore, the instrument must not be used until this is completely installed.



Dimension: Unit: mm

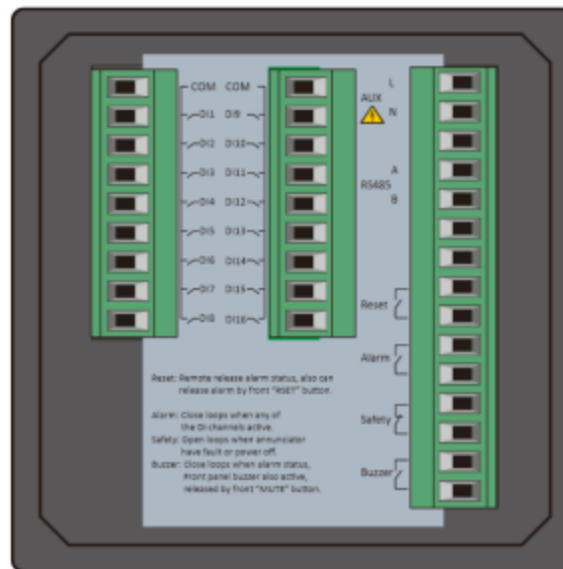


Front view



Side view

3.2.- Connection Terminal



Marked	Notes
COM	Input signal common terminal
DI 1-16	Corresponding to Channel 1~16 fault signal inputs
L, N	Power supply 85-265Vac/dc
RS485 A,B	RS485+/-, communication
Reset	Remote release alarm status, also can release alarm by front "RSET" button.
Alarm	Close loops when any of the DI channels active.
Safety	Open loops when annunciator have fault or power off.
Buzzer	Close loops when alarm status, Front panel buzzer also active, released by front "MUTE" button.

Note:

The terminal pin definition may change depends on customer order, please refer to the label on the device.

4.- FUNCTION DESCRIPTION

- When a valid alarm signal is collected, the corresponding alarm indicator light will light up and keep flashing, with a flashing frequency of $>1\text{Hz}$, and it will remain until it is confirmed. After confirmation: if the fault signal still exists, the alarm indicator light will continue to light up and the flashing will disappear; if the fault signal disappears, the indicator light will go out;
- The text description next to the alarm indicator light can be easily changed according to actual needs;
- The switch output of the relay is all passive contacts;
- Centralized alarm output: when any alarm signal input is on, the corresponding relay output contact is closed, and the alarm is confirmed and all alarm signals disappear. The corresponding relay output contact is disconnected. The centralized alarm output relay is located on the alarm host;
- Alarm self-fault alarm output: self-fault is defined as no power supply or alarm main IC card failure. When a fault occurs, the normally closed contact is closed; when there is no fault, the normally closed contact is disconnected;
- Sound alarm output, any alarm signal input, the sound alarm relay output contact is closed, and the sound alarm relay output contact is disconnected after confirmation. This sound alarm relay output contact can be used to connect an external alarm sound source device (such as an electric whistle, buzzer, etc.). This relay is located on the alarm host.

5.- RS4858 COMMUNICATION

5.1.- Measurement data, read only, function 0x03 to read

Register	Data	Byte mode		Instruction
0000	DI 1-16	int	1	Channel 1-16 DI status
0002	ALM 1-16	int	1	Channel 1-16 alarm status
0004	RST 1-16	int	1	Channel 1-16 status after reset
0006	DO 1-3	int	1	Channel 1-3 relay output status

5.2.- Readable and writable register (function 0x03 to read, 0x06 to write)

Register	Data	Byte mode		Instruction
0020	Communication address	int	1	Range: 1-247
0021	Communication baud rate	int	1	0: 2400, 1: 4800, 2: 9600, 3: 19200
0022	Communication data format	int	1	0:n.8.1, 1:o.8.1, 2:e.8.1, 3:n.8.2

6.- SAFETY CONSIDERATIONS



All installation specification described at the previous chapters named:
INSTALLATION AND STARTUP, INSTALLATION MODES and SPECIFICATIONS.

Please note that with the instrument powered on, the terminals could be dangerous to touching and cover opening actions or elements removal may allow accessing dangerous parts. This instrument is factory-shipped at proper operation condition.

- ◆ The device must have a professional installation and maintenance
- ◆ Any operation of the device, you must cut off the input signal and power;

7.- MAINTENANCE

The ALM-CH16 does not require any special maintenance. No adjustment, maintenance or repairing action should be done when the instrument is open and powered on, should those actions are essential, high-qualified operators must perform them.

Before any adjustment, replacement, maintenance or repairing operation is carried out, the instrument must be disconnected from any power supply source.

When any protection failure is suspected to exist, the instrument must be immediately put out of service. The instrument's design allows a quick replacement in case of any failure.

For any inquiry about the instrument performance or any failure, contact to Blue Jay's technical service.

Blue Jay - After-sales service

E-mail: tech@cqbluejay.com