

CDAS-04/72

Operating Instructions



DIGITAL AMMETER CONTROLLER

The Digital Ammeter Controllers precisely monitor and display current values. These devices are ideal for industrial processes requiring accuracy, reliability, and high performance. The controllers feature panel-mount enclosures built to DIN standards and rear electrical terminal connections. The polycarbonate front panel includes programming keys and a clear, three-digit red LED display (14mm). The controllers offer two configurable outputs and password-protected settings for enhanced security.

PARAMETERS	SPECIFICATIONS
Supply Voltage	12 VDC or 24 VAC/VDC or 110/220 VAC 50/60 Hz (specify when ordering)
Power Consumption	4 VA max@265V AC
Temperature	Operating : 0 to 50°C Storage : -20 to 75°C
Humidity	95% RH (non-condensing)
Weight	300 g
Input Signal	Current Transformer, 0-5A (AC), or 60mV DC Shunt (specify when ordering)
Input Range	0-999A (custom ranges available)
Indication Accuracy	1% of F.S ±1A
Output S1	SPDT Relay (250V/3A resistive load) or SSR (24VDC/20mA) — specify preference
Output S2	SPST-NO Relay (250V/3A resistive load)
Dimensions	Panel mount enclosure, DIN standard 72 × 72mm

SAFETY PRECAUTIONS

All safety-related codes, symbols, and instructions in this operating manual or on the equipment must be strictly followed to ensure the safety of operating personnel and the instrument. If the equipment is not used according to the manufacturer's specifications, it may compromise the protection provided by the equipment. • Do not use the equipment if there is any mechanical damage. • Ensure that the equipment is supplied with the correct voltage.

CAUTION

1. Read all instructions before installing and operating the unit.
2. Risk of electric shock.
3. Keep the installed equipment away from heating sources, caustic vapors, oils, steam, and other unwanted process byproducts.

WIRING GUIDELINES

WARNING

1. Turn OFF all power to the equipment before performing any wiring to prevent electric shock.
2. Wire the device strictly according to the terminal layout. Verify all connections are correct.
3. Use lugged terminals.
4. To minimize electromagnetic interference, use wires of appropriate ratings and twist pairs of equal size, keeping connections as short as possible.
5. Route connecting cables away from any internal EMI sources.
6. Power supply cables must have a cross-section of 0.5mm² to 2.5mm² (20 to 14AWG; 75°C minimum). These cables must have a current-carrying capacity of 7.5A.
7. Use copper cable (stranded or single-core).
8. Before working on the device, verify the absence of voltage using an appropriate voltage detection device.

INSTALLATION GUIDELINES CAUTION:

1. This equipment is built-in type and becomes part of the main control panel. After installation and internal wiring, the terminals are not accessible to end users.
2. Do not allow conductors to contact the internal circuitry of the equipment, as this creates a safety hazard that could cause electrical shock or endanger life.
3. Install a circuit breaker or mains switch between the power source and supply terminals to enable power control. Place this switch in a location easily accessible to operators.
4. Before disconnecting the external current transformer's secondary from the equipment, ensure the current transformer is short-circuited to prevent electrical shock and injury.
5. Install the equipment only in environmental conditions specified in this manual.
6. The equipment lacks a built-in fuse. We strongly recommend installing an external 275V AC/0.5A fuse for the electrical circuitry/battery.

MECHANICAL INSTALLATION

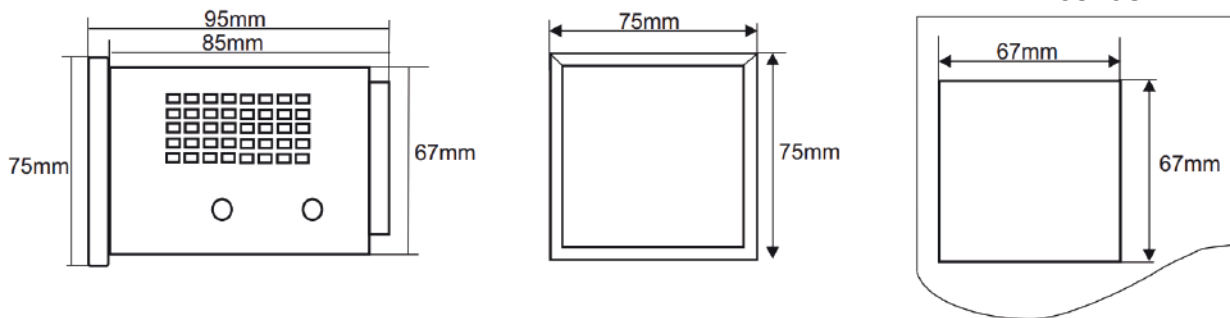
Installing the meter:

1. Prepare the panel cutout according to the dimensions shown below.
2. Insert the meter into the panel cutout and secure it in place.
3. For proper sealing, tighten all screws evenly to the following specifications: Terminal screw torque: 0.68–0.79 N-m (6.018–6.992 In-Lb) Screw clamp torque: 0.1 N-m (0.885 In-Lb)

MAINTENANCE

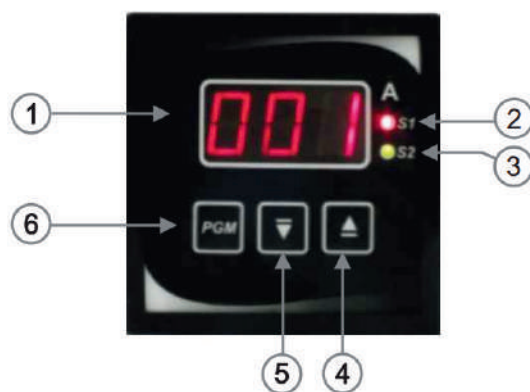
1. Clean the equipment regularly to prevent ventilation blockage.
2. Use only a clean dry or damp cloth for cleaning. Do not use any cleaning agents—water only.

MECHANICAL INSTALLATION



1. Prepare the panel cutout according to the dimensions shown above.
2. Insert the unit into the panel using the provided clamp.
3. When installed, ensure the equipment is kept away from heating sources, caustic vapors, oils, steam, and other unwanted process by-products.
4. Use appropriately sized crimp terminals (M3.5 screws) for the terminal block wiring. Tighten terminal block screws to a torque between 0 and 1.2 N.m.
5. Do not connect anything to unused terminals.

FRONT PANEL DESCRIPTION



- 1 - Display shows the current or programming value.
- 2 - LED S1 lights when relay output S1 is active.
- 3 - LED S2 lights when relay output S2 is active.
- 4 - Up arrow ▲ key to increase control or programming values.
- 5 - Down arrow ▼ key to decrease control or programming values.
- 6 - PGM key to access controls or programming.

TERMINAL CONNECTIONS

EMC GUIDELINES

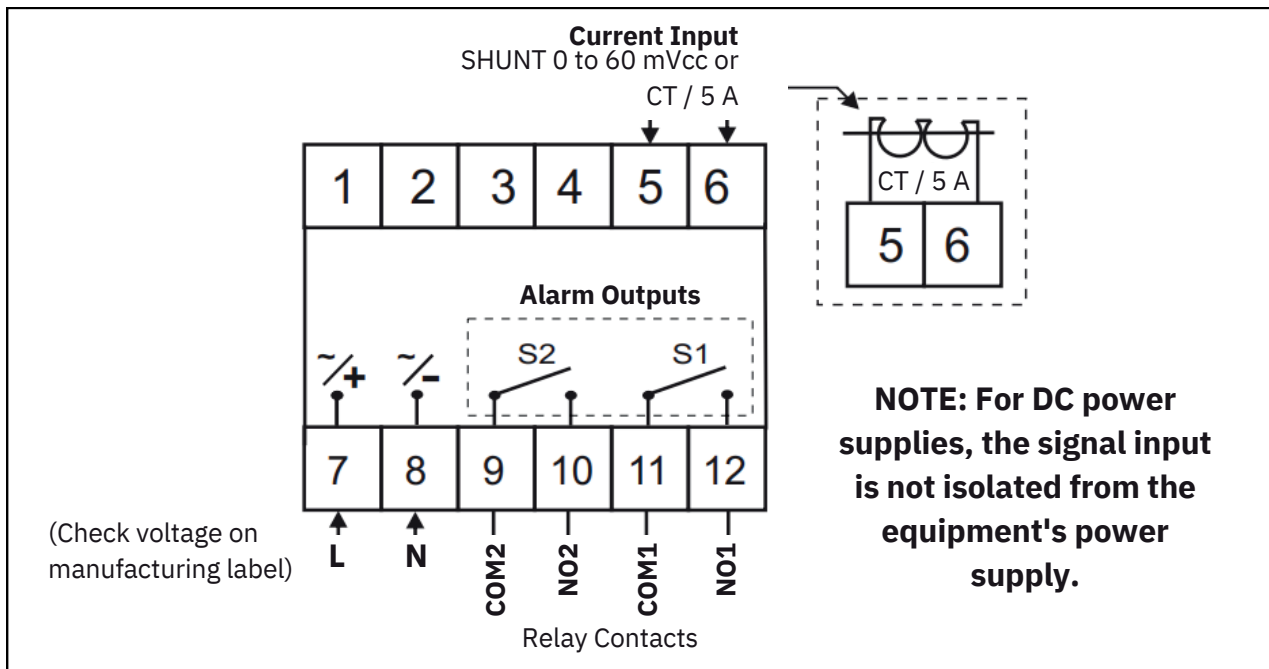
1. Use proper input power cables that are twisted and as short as possible.
2. Route connecting cables away from any internal EMI sources.

ELECTRICAL PRECAUTIONS DURING USE

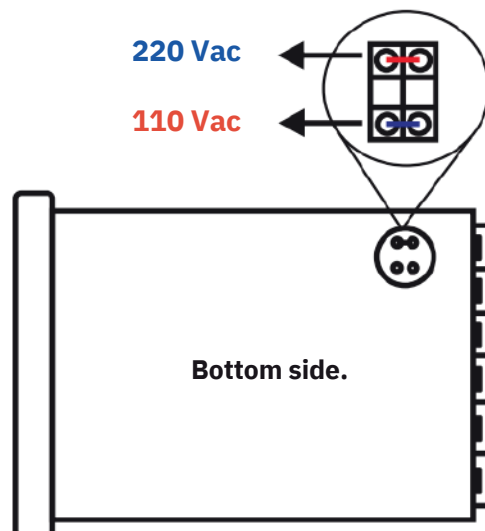
Electrical noise from switching inductive loads can cause momentary disruption, erratic display behavior, system lockup, data loss, or permanent damage to the instrument.

To reduce noise:

- a) Install snubber circuits across loads as shown above.
- b) Use separate shielded wires for inputs.



For 110/220V AC Power Supply:
Set jumper according to desired supply voltage.



OPERATIONAL MENU

• Alarm Settings

To modify the control values **AL1** (for output **S1**) and **AL2** (for output **S2**):

Press the **PGM** key once to display **AL1**. Use the up and down arrow keys to set the desired value for output **S1**. Press **PGM** to confirm. **AL2** will then appear. Use the up and down arrow keys to set the desired value for output **S2**. Press **PGM** once more to save all settings. The display will return to showing the current value.

• Parameter and Configuration Settings

Press and hold both up and down arrow keys simultaneously for **6 seconds**. The display will show "**SEn**" (access password **123**). Press either the up or down arrow key until **123** appears, then press the **PGM** key to confirm. The display will then show "**CAL**", indicating the first programming mode parameter.

To modify the first parameter **CAL**, press the **PGM** key and use the up or down arrow keys to reach your desired value. Press **PGM** to confirm, the display will return to showing **CAL**.

To view other parameters, press the up or down arrow keys to navigate through the table below. Modify each parameter's value using the same procedure described for **CAL**.

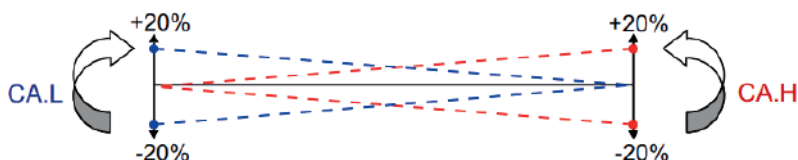
CONFIGURATION PARAMETERS

CAL
CA.H

Low angular calibration: -20% to +20% (Default: 0)

High angular calibration: -20% to +20% (Default: 0)

Note: When CA.L and CA.H are adjusted by equal amounts in opposite directions, the current curve shifts up or down without changing its slope.



d.P
F IL
CT

Decimal point position: 0.00, 00.0 or 000 (Default: 000)

Reading resolution (Controls sampling interval):
0.1 to 50.0 (Default: 10.0) — Each unit represents 20ms

CT or shunt ratio: 0 to 999 (Default: 999)

• S1 Alarm Configuration:

S - 1

H = High alarm (Default)
L = Low alarm
d I.b = Band differential alarm
d I.L = Low differential alarm (S2 differential, single setpoint only)
d I.H = High differential alarm (S2 differential, single setpoint only)
OFF = Alarm disabled

1.AC

S1 Alarm Relay Output Configuration:
 nO = Normally Open (Default)
 nC = Normally Closed

1.AL

Setpoint for d 1.L , d 1.H , and d 1.b Alarms: 1-999 (Default: 005)

1.HY

S1 Hysteresis: 1-999 (Default: 002)

1.r t

Alarm delay (seconds): OFF or 1-999 (Default: OFF)

1.PL

Alarm duration (seconds): OFF or 1-999 (Default: OFF)

1.bL

Initial operation block (seconds): OFF or 1-999 (Default: OFF)

1.OP

Operator Alarm Change Lock:
 YES = Prevents operators from modifying setpoint 1
 nO = Allows operator modifications (Default)

SEn

Password configuration range: 0-999 (Default: 123)

P.FA

Resets the equipment to factory settings.

ESC

Exit configuration menu.

• S2 Alarm Configuration:

5-2

H = High alarm (Default)
 L = Low alarm
 d 1.b = Band differential alarm
 OFF = Alarm disabled

2.AC

S2 Alarm Relay Output Configuration:
 nO = Normally Open (Default)
 nC = Normally Closed

2.AL

Setpoint for d 1.b Alarms: 1-999 (Default: 005)

2.HY

S2 Hysteresis: 1-999 (Default: 002)

2.r t

Alarm delay (seconds): OFF or 1-999 (Default: OFF)

2.PL

Alarm duration (seconds): OFF or 1-999 (Default: OFF)

2.bL

Initial operation block (seconds): OFF or 1-999 (Default: OFF)

2.OP

Operator Alarm Change Lock:
 YES = Prevents operators from modifying setpoint 1
 nO = Allows operator modifications (Default)

Legend:

PV: Process value shown on display.

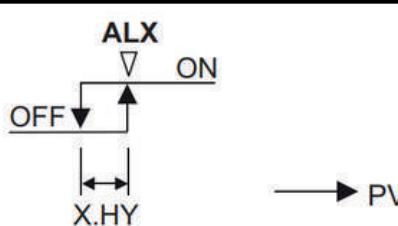
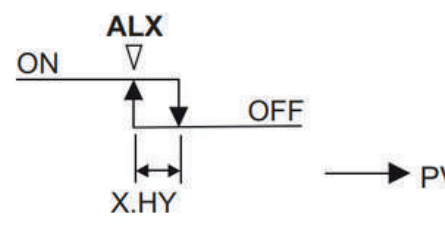
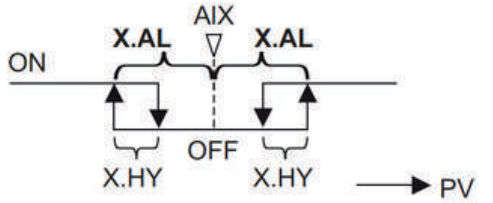
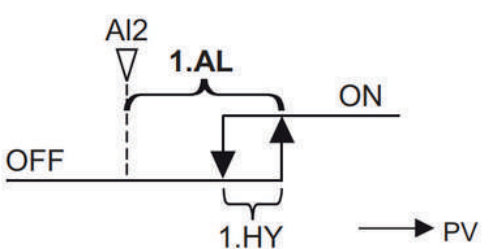
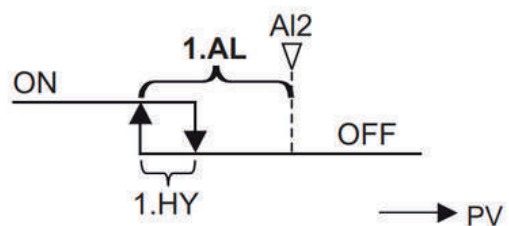
ALX: Setpoint configured for alarm **1** or **2**. (**X** represents alarm number).

X.AL: Setpoint referenced to **AL1** or **AL2** (Used only with **di.b**, **di.L**, or **di.H** alarms).

X.HY: Hysteresis referenced to alarm **1** or **2**.

Note 1: **di.H** and **di.L** alarms are used only with **AL1**, which is referenced in **AL2**.

Note 2: **L**, **H**, and **di.b** alarms operate independently and can be applied to both **AL1** and **AL2**.

DISPLAY	FUNCTION	MODE OF OPERATION
H	High Alarm ON: $PV > ALX$ OFF: $PV < ALX - X.HY$	 The diagram shows a horizontal line representing the process value (PV). A downward-pointing triangle labeled 'ALX' indicates the setpoint. The alarm is 'ON' when the PV line is above the ALX setpoint. It is 'OFF' when the PV line drops below the setpoint by a distance labeled 'X.HY' (hysteresis).
L	Low Alarm ON: $PV < ALX$ OFF: $PV > ALX + X.HY$	 The diagram shows a horizontal line representing the process value (PV). A downward-pointing triangle labeled 'ALX' indicates the setpoint. The alarm is 'ON' when the PV line is below the ALX setpoint. It is 'OFF' when the PV line rises above the setpoint by a distance labeled 'X.HY' (hysteresis).
d i.b	Band Differential Alarm ALX activates when PV exceeds the symmetrical band centered on X.AL . The band's width is determined by the X.HY hysteresis value.	 The diagram shows a horizontal line representing the process value (PV). A central downward-pointing triangle is labeled 'AIX'. Two other downward-pointing triangles on either side are labeled 'X.AL'. The distance between the central setpoint and the band edges is 'X.HY'. The alarm is 'ON' when the PV line is within the band between the two X.AL setpoints. It is 'OFF' when the PV line is outside this band.
d i.H	High Differential Alarm (Only for AL1) ON: $PV > AL2 + 1.AL$ OFF: $PV < AL2 + 1.AL - 1.HY$ Note: 1.AL references AL2 , while AL2 functions independently.	 The diagram shows a horizontal line representing the process value (PV). A downward-pointing triangle labeled 'AI2' indicates the setpoint for AL2. Another downward-pointing triangle labeled '1.AL' is positioned above the AI2 setpoint. The distance between them is '1.HY'. The alarm is 'ON' when the PV line is above the 1.AL setpoint. It is 'OFF' when the PV line is below the 1.AL setpoint by the hysteresis distance.
d i.L	Low Differential Alarm (Only for AL1) ON: $PV < AL2 + 1.AL$ OFF: $PV > AL2 + 1.AL - 1.HY$ Note: 1.AL references AL2 , while AL2 functions independently.	 The diagram shows a horizontal line representing the process value (PV). A downward-pointing triangle labeled 'AI2' indicates the setpoint for AL2. Another downward-pointing triangle labeled '1.AL' is positioned above the AI2 setpoint. The distance between them is '1.HY'. The alarm is 'ON' when the PV line is below the 1.AL setpoint. It is 'OFF' when the PV line is above the 1.AL setpoint by the hysteresis distance.
OFF	Alarm OFF - Disabled - Not operational	-----