

AcuHMI

HMI Display and Gateway

Quick Setup Guide

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Model
AcuHMI-1-7

Safety Notice

Read this document and the following symbols carefully before the installation, operation and maintenance of the AcuHMI.

Accuenergy is not responsible or liable for any damages or injuries caused by improper device installation and/or operation.

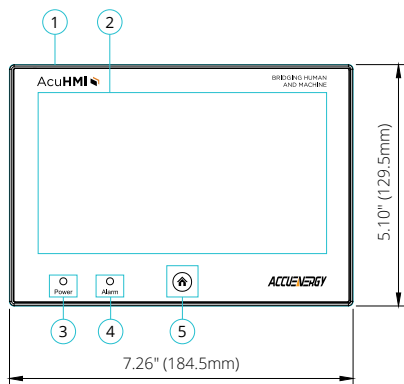
- Prior to maintenance and repair, the equipment must be de-energized and grounded.
- A switch or circuit breaker must be included in close proximity to the equipment and operator.
- All maintenance work must be performed by qualified professionals with formal training and experienced in high voltage/current.
- Equipment must be installed in an NRTL certified enclosure to provide suitable protection.

Important Symbols

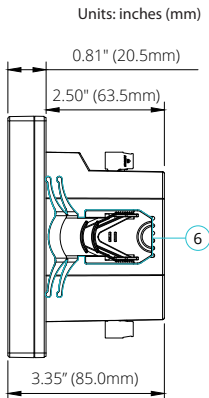
The following symbols can be found in this document.

ALERT	Indicates the operation may lead to device malfunction or potential data loss.
NOTE	An advance notice to provide additional information before an action is taken by the user.

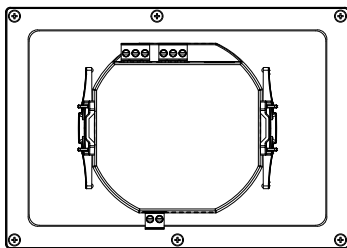
Appearance and Dimension



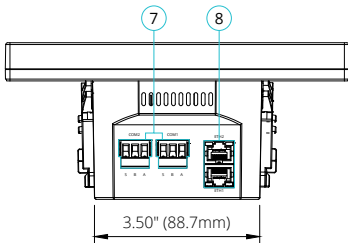
Front View



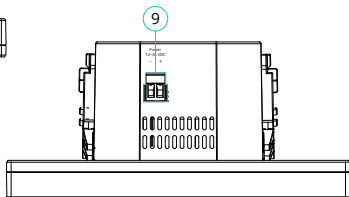
Side View



Rear View



Top View



Bottom View

Part Name	Description
① Front Casing	HMI user interface with display screen and tactile controls.
② LCD Screen	Full colour 800 by 400 pixels resolution backlight screen.
③ Power LED	Indicates the AcuHMI is powered on when LED illuminates green.
④ Alarm LED	LED flashes red to indicate an alarm has been triggered.
⑤ Home Key	Pressing the key returns the user back to the Home screen.
⑥ Side Clips	Secures the AcuHMI in a panel installation.
⑦ RS485 Terminals	Two RS485 communication ports for Modbus RTU.
⑧ Ethernet Terminals	RJ45 Ethernet ports for Modbus TCP/IP communication.
⑨ Power Supply Terminal	12V to 36V (+/-10%) DC control power input.

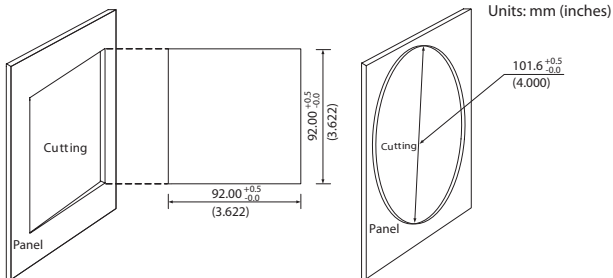
Operating Environment

- Ensure the AcuHMI is installed in a dry, dust-free environment.
- Avoid exposure to heat sources, radiation, and strong electrical interference.
- Operate the device's temperatures between 0 °C to 55 °C (32°F to 131°F).

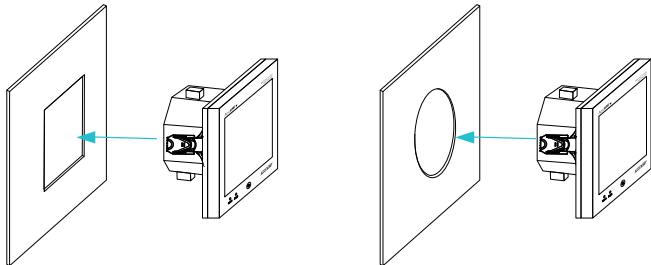
Panel Installation

Install the AcuHMI in a standard ANSI C39.1 (Round) or an IEC 92mm DIN (Square) panel form factor.

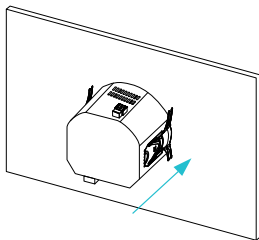
1. Cut out a square or round mounting window on the panel. The mounting window dimensions are specified in the diagrams below.



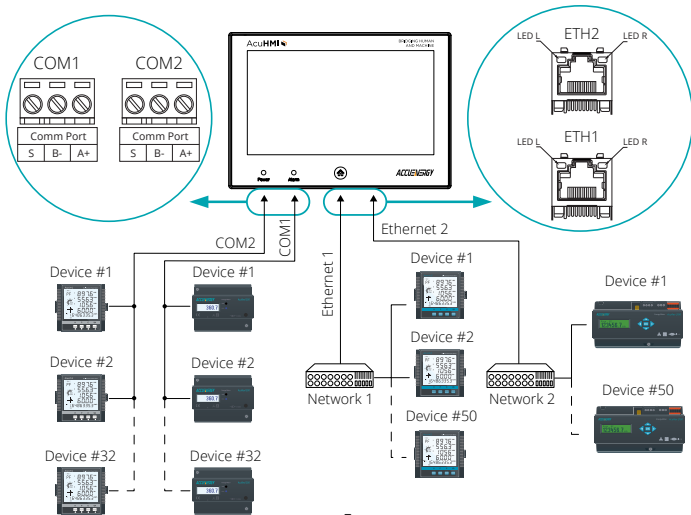
2. Remove the side clips, before inserting the AcuHMI through the front panel window.



3. Install the side clips on the left and right sides to secure the AcuHMI tightly to the panel.



Wiring Diagram



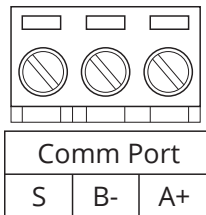
RS485 Ports

AcuHMI includes two serial RS485 ports, labeled COM1 and COM2.

Each RS485 port supports a daisy-chain configuration for multiple devices to be connected on a single RS485 bus.

All daisy-chained devices must operate at the same baud rate and have unique slave IDs.

For Modbus-RTU via RS485 connection, the cable distance should not exceed 1200m. Use a shorter cable when connecting multiple devices to the same network or for a higher baud rate. Use an RS232-to-RS485 converter if the master device has an RS232 port.



A+	Positive Differential
B-	Negative Differential
S	Shield Connection

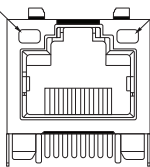
To improve RS485 communication quality:

- Use a shielded 22AWG cable.
- Minimize electrical noise with single-point earthing.
- Avoid T type connection topology.
- Keep communication cables separated from electrical noise sources.
- Use a 120-300Ω, 0.25W terminating resistor at the end of the daisy-chain.

Ethernet Ports

The AcuHMI can access a meter's data via Modbus TCP/IP by connecting to an Ethernet router. For Modbus-TCP/IP communication, a 10/100 Mbit/s CAT5 Ethernet cable is recommended for an IP configuration or DHCP.

LED L LED R



Top View

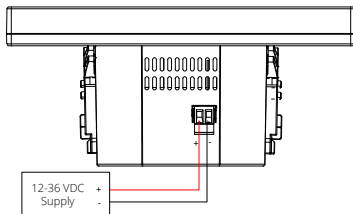
LED_L (Yellow)	Indicates transmission speed, lighting on for 100Mbps and off for 10Mbps.
LED_R (Green)	Indicates activity status, staying on when connection is established and blinking during data transmission.

The configuration requires an Ethernet cable with an impedance of 100-120 Ω . Both ends of the cable trunk should be terminated with 120 Ω resistors to match the cable's impedance, ensuring proper signal transmission.

After completing the hardware installation, the system will boot to the Home screen within a few seconds.

Power Supply Terminal Wiring

To connect the auxiliary power adapter to the DC power port, ensure that a 12-36V SELV power adapter (sold separately) is used for the AcuHMI. The maximum current consumption is 0.5A at 12VDC.



Secure Login

To securely modify device settings from the Home screen, the user must authenticate with valid credentials.

Press the **Login** button located in the top right corner of the screen, and the login menu will appear. Enter the username and password and press **Sign In**.

Default Login Credentials:	
User Name	admin
Password	admin

 AcuHMI ×

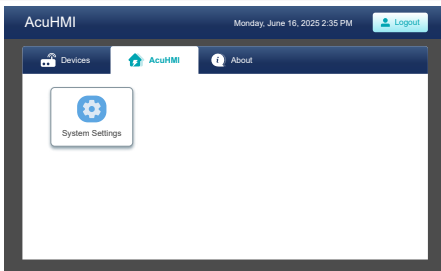
Smart Industrial Panel for Monitoring & Control



System Settings

Default Network Settings

Navigate to the AcuHMI tab and press the **System Settings** button to enter the network settings screen to allow the user to configure the network for the AcuHMI.



☒ RSTP Enable

Default Interface (Outbound Traffic)

Ethernet RSTP

Ethernet RSTP ^

☐ Auto
 ☒ Manual

Interface Status

Disconnected

IP*

192.168.8.101

Must be ip address

Mask*

255.255.255.0

Must be ip address

Gateway*

192.168.8.1

Must be ip address

Each network option can be individually configured. The default settings are listed below.

RSTP Enable	Rapid Spanning Tree Protocol can be toggled on/off to enable Ethernet daisy chaining. By default the RSTP protocol is disabled.
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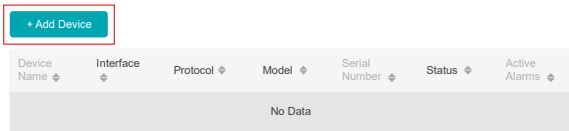
Default Interface (Outbound Traffic)	Sets the default communication interface. RSTP Enabled Only Ethernet RSTP is available when RSTP is turned on. RSTP Disabled The user can choose from Ethernet 1 or Ethernet 2.
Ethernet RSTP	Default Settings DHCP: Manual IP Address: 192.168.8.101 Subnet Mask: 255.255.255.0 Gateway: 192.168.8.1
Ethernet 1	Default Settings DHCP: Manual IP Address: 192.168.8.101 Subnet Mask: 255.255.255.0 Gateway: 192.168.8.1
Ethernet 2	Default Settings DHCP: Auto
DNS1	8.8.8.8
DNS2	8.8.4.4

Meter Connection

How to Add a Meter

Press the **Home** key to return to the Home screen. Press the **Physical Devices** button on the screen.

Press the **+ Add Device** button in the top left corner to access the **Add Meter** screen.



Fill in the respective device settings below.

Device Name	Enter a custom name for the meter.
Serial Number	Enter the serial number of the device to be connected.
Template	Available options are Accuenergy meters, see the user manual for the device list.
Protocol	AcuHMI supports two types of connection protocols: RTU: A Modbus RTU serial communication protocol that uses binary encoding for data transmission. TCP: A TCP/IP protocol that allows Modbus communication over Ethernet networks.

Modbus RTU Configuration

Protocol

☒ RTU

☐ TCP

Port

COM 1

Modbus ID

--Enter Modbus ID--

Must be unique in this AcuHMI device
Range 1-245

Baud Rate

38400

Data Bit

8

Parity

None

Stop Bit

1

Request Timeout

0.5

Port	Enter the assigned communication port number for the serial port used to connect to the meter.
Modbus ID	Enter the meter's device address within the range of 1 to 246.
Baud Rate	Select a baud rate from the drop-down menu that matches the meter's configured setting. Available options are 2400, 4800, 9600, 19200, 38400, 57600, 76800, or 115200.
Data Bit	Select a value from 5 to 8.
Parity	Select the desired parity from the drop-down menu. Available options are None, Odd, or Even.
Stop Bit	Select from 1 and 2.
Request Timeout	Select a timeout duration from 0.1 to 5s.

Modbus TCP Configuration

Protocol

☐ RTU

☒ TCP

Address*

Must be IP address

Port

Range: 1-65535

Modbus ID

Must be unique in this AcuHMI device
Range: 1-246

Requested Timeout*

Range: 0.1-5

IP Address	Enter the IP address of the meter.
Port	Select a communication port from 1 to 65535.
Modbus ID	Enter the meter's device address between 1 to 246.
Request Timeout	Select a timeout duration from 0.1 to 5s.

After the device has been configured, press the **Save** button to establish a new communication.

Troubleshooting

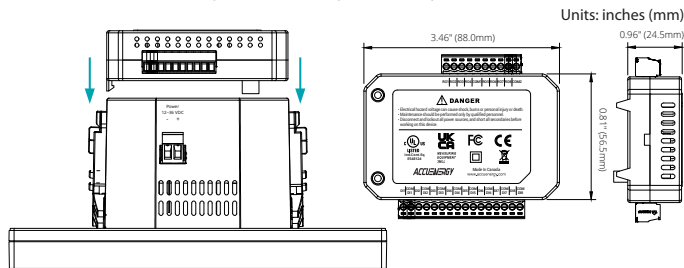
If communication cannot be established successfully, ensure the meter has a valid IP address (Modbus TCP). Check if the meter is physically connected correctly, and the communication settings have been configured properly.

If the meter is still having trouble connecting to the AcuHMI, please contact customer support.

Expansion Module

The H-IO1 is a dedicated expansion module designed specifically for AcuHMI. It is powered directly by AcuHMI, eliminating the need for external power source.

The module can be mounted on the back of the AcuHMI and provides 8 digital inputs (DI) for external signal monitoring and 8 relay outputs (RO) for alarm control.



Digital Input (DI) Connection

Each digital input has an isolated DI terminal pair and a corresponding common terminal (i.e. COM DI1, COM DI2, etc).

H-IO1 Digital Input (DI) Interface	
Channel Count	8 Digital Inputs (DI1-DI8)
Input Voltage Range	0-28VDC
ON-State Voltage	> 15VDC
OFF-State Voltage	< 5VDC
Isolation Voltage	1500VAC

To Connect the Digital Input:

1. Connect a low-voltage DC control signal (0–28 VDC) from external devices, such as contactors, mechanical switches, or PLC digital outputs to the corresponding positive digital input channel.
2. Connect the ground of the same low-voltage DC control signal to the negative digital input terminal of the same channel.
3. Do not connect high-voltage DC signals or AC signals to the digital input terminals.
4. 15VDC indicates Logical 1 (ON-State), and < 5VDC indicates Logic 0 (OFF-State). Values between 5-15VDC are undefined and should be avoided to ensure stable logic state detection.

Relay Output (RO) Connection

The H-IO1 module features 8 relay output terminals, denoted RO1 to RO7.

H-IO1 Digital Input (DI) Interface	
Channel Count	8 Relay Outputs (RO1-RO8) & 2 Common Terminals (COM1 & COM2)
Relay Type	1 Form A (Normally Open)
Max Switching Voltage	250VAC or 30VDC
Max Load Current	5A (Resistive Load)
Isolation Voltage	2500VAC

ALERT: If only one relay is used, the maximum current is 5A. When multiple relays are used, the total current must not exceed 8A in each common terminal.

ALERT: Do NOT mix AC and DC loads between the two outputs. The outputs must either be 250 VAC or 30 VDC.

NOTE: The two relay outputs, COM1 and COM2, share a common power source and must use the same type of voltage.

To Connect the Relay Output:

1. Connect one end of the external load, such as an alarm light or buzzer, to the desired relay output terminal.
2. Connect the other end of the load to the external voltage supply.
3. Connect the corresponding common terminal (COM1 or COM2) to the load return path (e.g., power supply ground or negative terminal). RO1–RO4 share the common terminal COM1, and RO5–RO8 share the common terminal COM2.



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