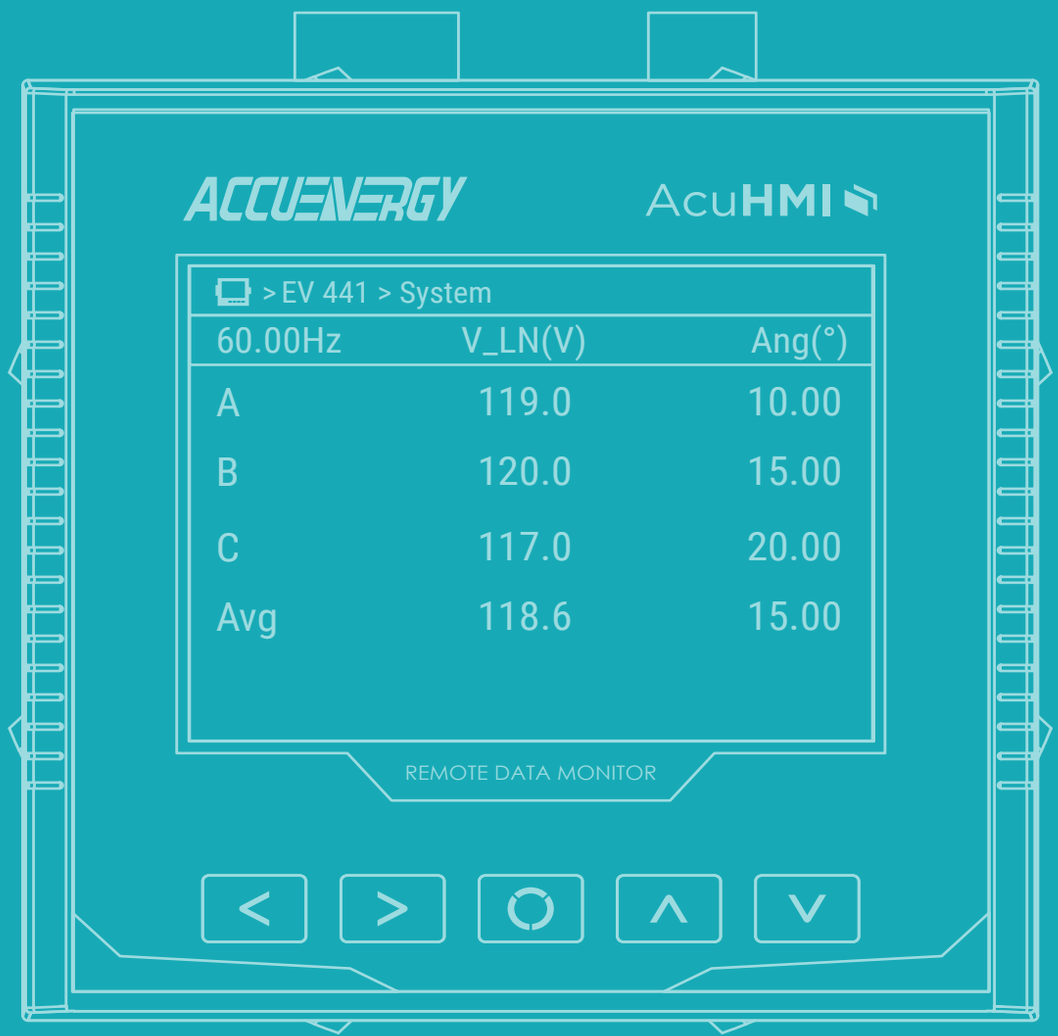
AcuHMI 4” Display
Remote Meter Monitor
QUICK SETUP GUIDE



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ACCUENERGY

Table of Contents

1. Overview 2

1.1 Package Contents 2

1.2 Appearance and Dimensions 3

2. Operating Environment 4

3. Installation Method 5

3.1 Panel Installation 5

3.2 DIN Rail Mounting 7

4. Wiring 8

4.1 Power Supply Wiring 8

4.2 RS485 Wiring 9

4.3 Ethernet Wiring 10

5. Communication Topology 10

5.1 Display Function 11

5.2 Gateway Role 11

5.3 Network Topology Options 12

6. Navigation Keys and Menu Structure 13
6.1 Keys Function 13
6.2 Menu Structure 14
7. Network Configuration 15
7.1 Configure Ethernet 16
7.2 Configure RS485 16
8. Meter Addition and Device Connection 17
8.1 Adding Meters using Acuview 2 17
8.2 Viewing Connected Meter Readings 18
9. Troubleshooting 19
10. Specifications Summary 20

MODEL	AcuHMI-1-4

Important Safety Notice

Read this document and the following symbols carefully before the installing, operating and maintaining the AcuHMI 4" Display.

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

The following symbols can be found either in this document or on the product.



ELECTRIC HAZARD: Indicates information about procedures which must be followed to reduce the risk of electric shock and danger to personal health.



WARNING ALERT: Indicates a hazardous circumstance which may result in severe injury or death.



INFO: Provides additional information before an action is taken by the user.

Legal Notice

This quick setup guide provides informational and operational guidance regarding the use of the device. While effort has been made to ensure the accuracy, reliability, and completeness of the information at the time of publication, Accuenergy assumes no responsibility for any errors, omissions, or misunderstandings in this document and reserves the right to modify its content at any time without prior notice.

Users should verify with Accuenergy or their authorized local representative that the document in use is the latest version and strictly adheres to the installation, operation, and maintenance procedures specified herein. Accuenergy shall not be held liable for any damages or consequences resulting from improper use or failure to comply with the provisions of this document.

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1. Overview

1.1 Package Contents

INFO

Carefully open the packaging of the module and do not use excessive force. Inspect the package on arrival and if any item is missing or damaged, contact an Accuenergy representative before installation.

Do not open the enclosure of the module. It has no user-service parts inside, and opening will void the warranty.

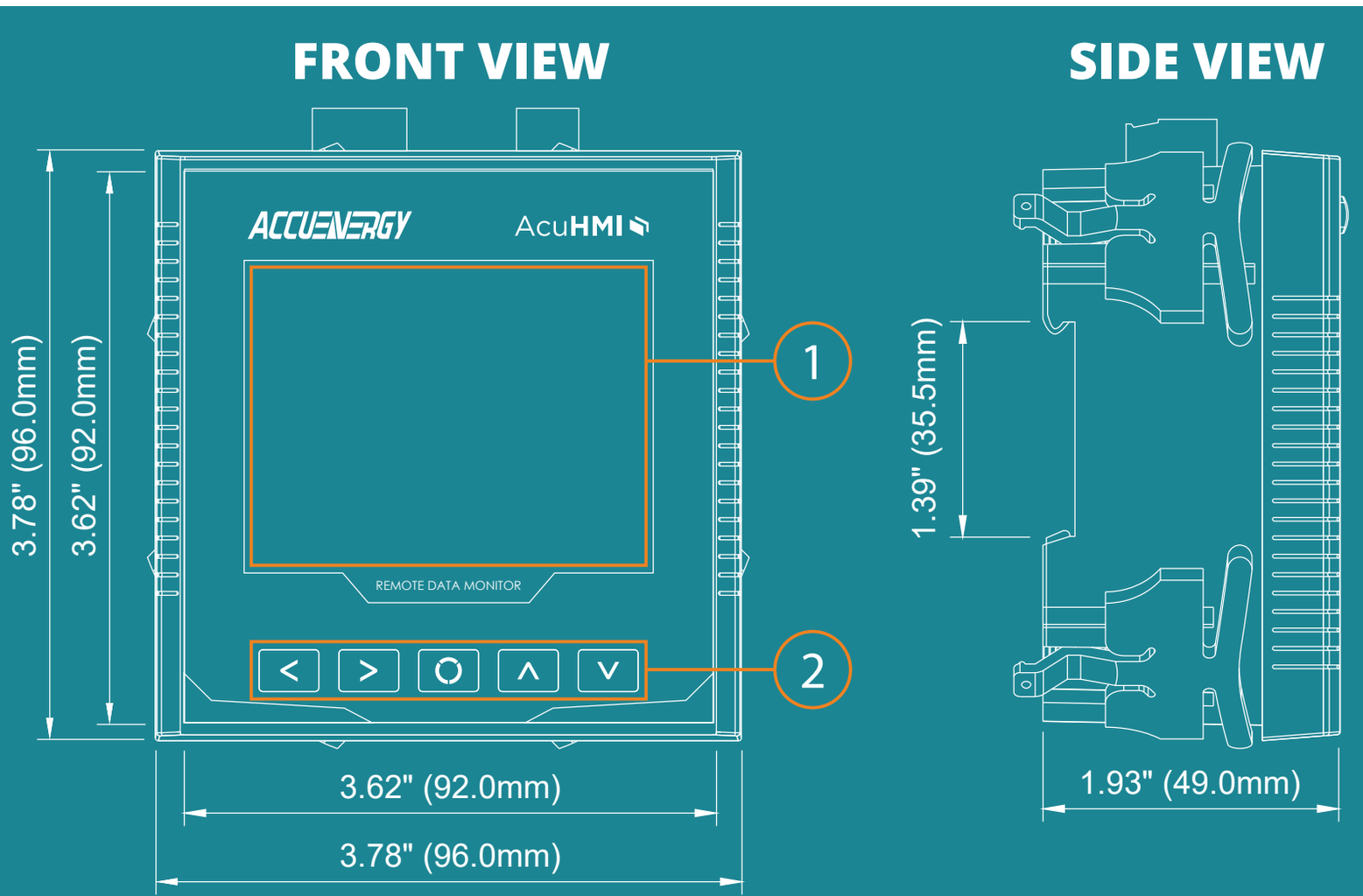
A.	AcuHMI 4” Display Module
B.	Four Panel-Mount Fixing Clips
C.	2-Pin Pluggable Power Terminal Block
D.	3-Pin Pluggable RS485 Terminal Block
E.	Gasket
F.	Quick Setup Guide

INFO

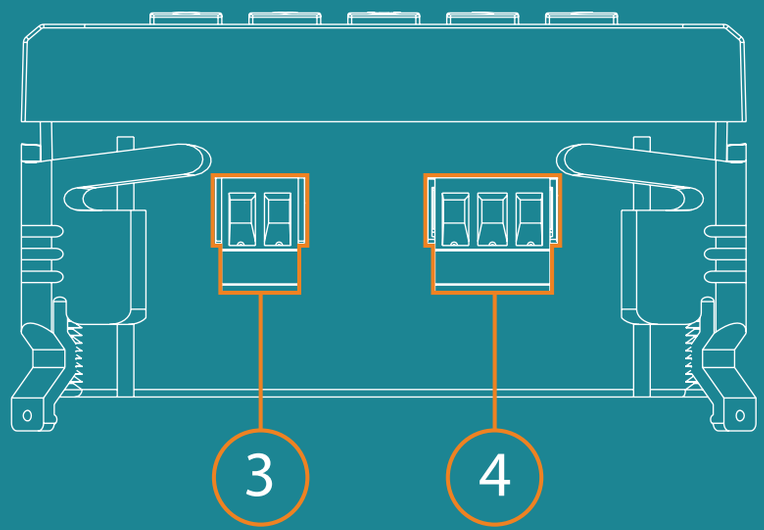
The fixing clips and gasket used for panel installation are not required for DIN rail installation.

1.2 Appearance and Dimensions

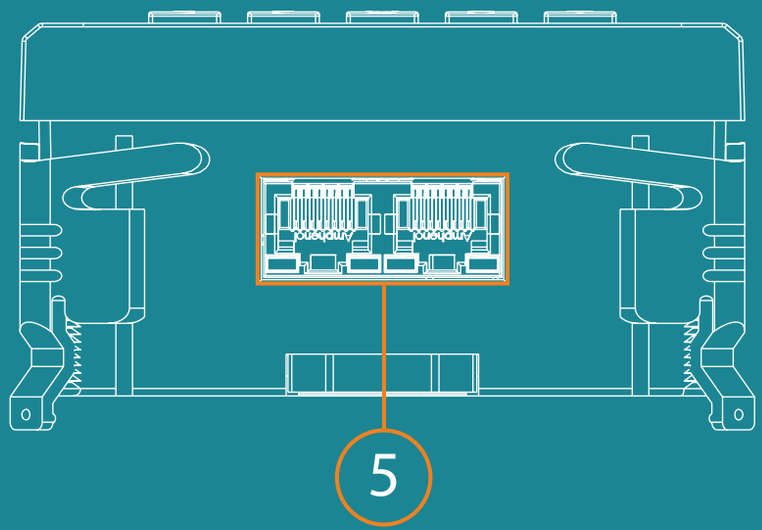
ITEM	DESCRIPTION
1. Colour LCD	Colour display to view connected meter readings and device information.
2. Navigation Keys	Five keys to navigate through the screen and configure settings.
3. Power Supply Terminal	2-pin pluggable terminal block for 12 - 36 VDC power input.
4. RS485 Port	3-pin pluggable terminal block for Modbus RTU communication.
5. Ethernet Ports	Dual RJ45 Ethernet ports with 10/100 Mbps speed for Modbus TCP communication.



TOP VIEW



BOTTOM VIEW



2. Operating Environment

WARNING ALERT

Ensure that the following operating conditions are met. Failure to do so may affect device performance, damage hardware, or create safety risks.

Location	Indoor
Pollution Degree	2
Rated Operating Range	–25 °C to +70 °C (–13 °F to +158 °F), 0% to 75% RH
Limit Range of Operation	–30 °C to +80 °C (–22 °F to +176 °F), 0% to 95% RH
Storage and Shipping	–30 °C to +80 °C (–22 °F to +176 °F), 0% to 95% RH
Altitude	0 m to 2000 m

3. Installation Method

The AcuHMI-1-4 model supports panel mounting and optional DIN rail mounting. Select the appropriate mounting method based on the installation requirements.

INFO

Install the HMI module in a cabinet or enclosure rated IP54 or higher. Only the front panel provides IP54 protection.

3.1 Panel Installation

Cutout Preparation

1. Prepare the panel cutout opening before mounting the device.
2. Cut a square opening measuring 92 × 92 mm in the panel.
3. Allow adequate clearance behind the cutout for cable routing and on each side for ventilation.

Mount the Device

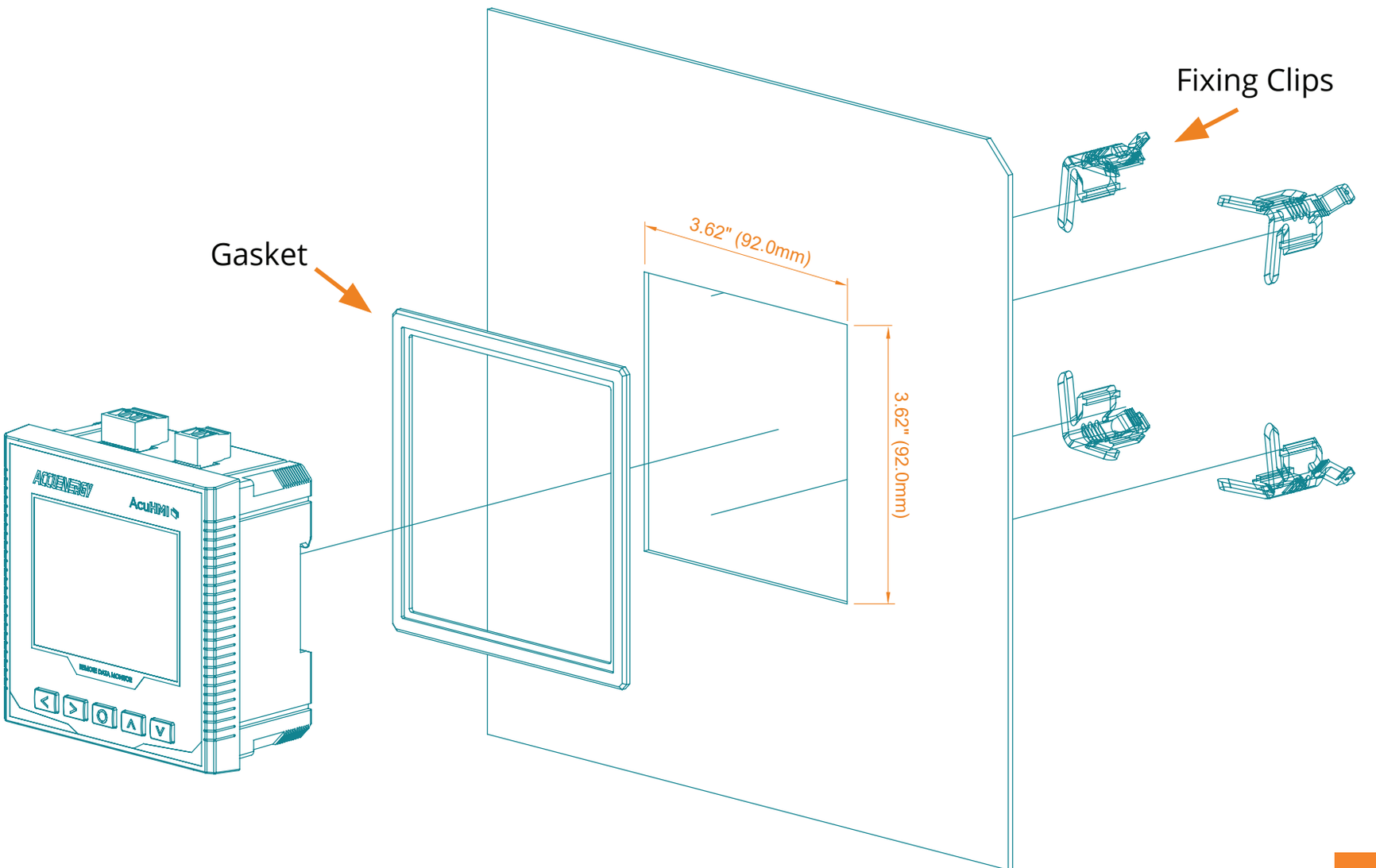
1. Insert the module and gasket from the front of the panel until the front bezel is flush against the panel surface.
2. From the rear of the panel, position the four fixing clips in the respective designated housing slots, with two clips at the top and two at the bottom grooved corners.

3. Push the device into the panel cutout until the clip engages the corner grooves and the device is firmly held against the panel. Push down the edges of the fixing clips to adjust the device position. Do not over-tighten.

4. Verify that the device is firmly mounted and that the front gasket is correctly seated.

WARNING ALERT

Ensure the front gasket is properly positioned to maintain the IP54 protection rating of the front panel.



3.2 DIN Rail Mounting

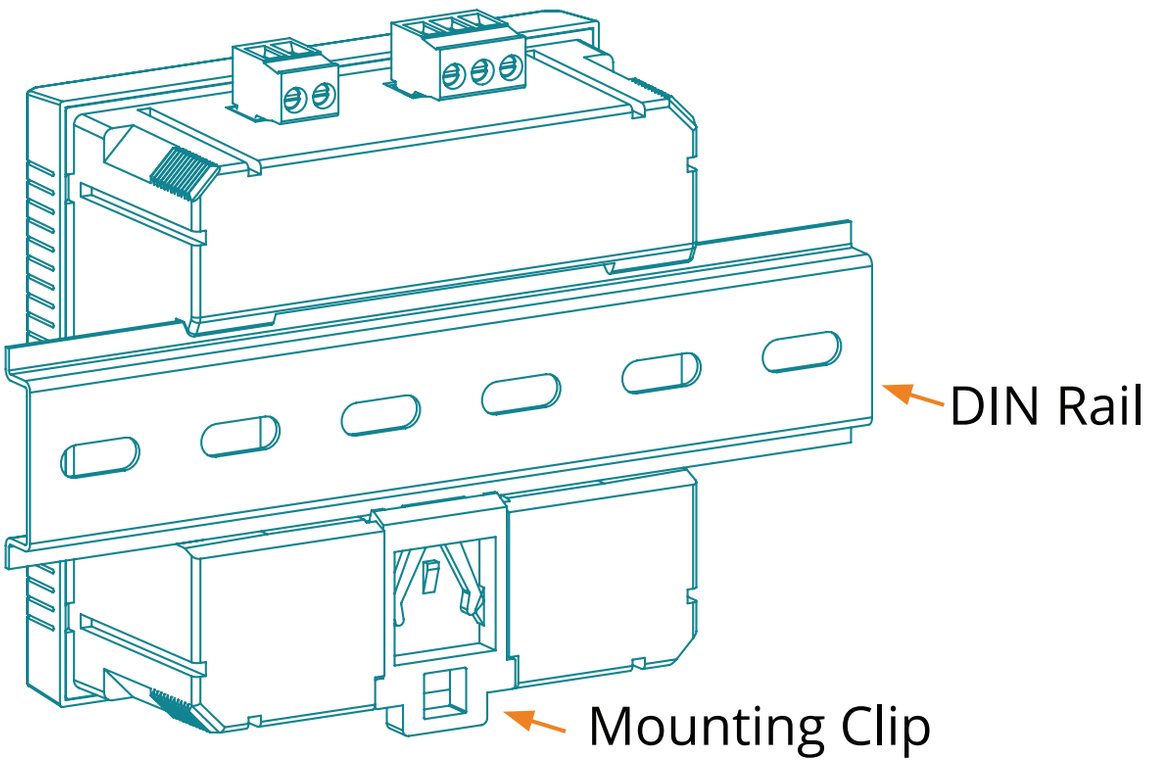
The AcuHMI-1-4 model can also be mounted directly on a standard 35 mm DIN rail in accordance with IEC 60715, using the integrated clip on the rear of the housing.

1. Position the rear mounting clip of the module against the DIN rail.

2. Press the unit firmly onto the rail until the clip engages.

3. Verify the device is securely attached to the DIN rail.

4. To remove, pull down the mounting clip release lever and lift the module away from the rail.



4. Wiring

The AcuHMI-1-4 model is a SELV rated device that requires an external 12 - 36 VDC supply.



ELECTRIC HAZARD

Installation must be performed by qualified personnel in accordance with local electrical codes. De-energize all power sources before wiring the device.

Use appropriately rated cables and follow applicable electrical installation requirements.

Do not connect the power supply terminals to mains AC voltage.

4.1 Power Supply Wiring

Connect external 12 - 36 VDC power supply wires to the power terminal block according to the following table.

SIGNAL	TERMINAL	RECOMMENDED WIRE
+	Positive	18 - 22 AWG (0.34 - 0.82 mm²)
–	Negative / Return	18 - 22 AWG (0.34 - 0.82 mm²)



INFO

The module is powered independently of the connected meters. Do not connect the power supply to the auxiliary power terminals of a connected meter.

4.2 RS485 Wiring

The AcuHMI-1-4 model supports Modbus RTU communication through its RS485 interface.

Connect the RS485 communication wires to the corresponding terminal block according to the following table.

TERMINAL	SIGNAL
A+	Data +
B-	Data −
S	Shield / Ground

INFO

Use a shielded twisted-pair cable for RS485 communication.

Connect the cable shield to the S terminal at the module end. Leave the shield floating at the opposite end.

Terminate the bus with a 120 Ω resistor at each physical end of the RS485 bus, as required by the installation.

A maximum of 32 devices may be daisy-chained on a single RS485 bus without a repeater.

The AcuHMI 4” Display module supports up to eight connected meters in software configuration, regardless of the physical RS485 bus capacity.

4.3 Ethernet Wiring

The AcuHMI-1-4 model supports Modbus TCP communication through its RJ45 Ethernet interface.

1. Connect a Cat5e or higher-rated Ethernet cable to either ETH1 or ETH2 ports.

2. Connect the opposite end of the cable to the upstream network.

3. Verify that the Ethernet connection is established and configure the IP address and network settings as required.

INFO

ETH1 and ETH2 ports share the same IP address.

Both ports may be used simultaneously when Ethernet mode is **RSTP Enable,** which is a default setting. In **Single ETH** with **No RSTP,** only ETH1 is used and ETH2 is disabled.

INFO

Power cables and communication cables must not be routed in the same trunk to prevent electromagnetic interference.

5. Communication Topology

The AcuHMI-1-4 simultaneously performs two roles on the network which are as described below:

1. **Display Function:** Poll connected meters and display readings to client.

2. **Gateway Role:** Modbus TCP pass-through gateway communication between upstream client requests and downstream meters.

5.1 Display Function

The module polls up to 8 connected meters simultaneously through RS485 and/or Ethernet connections. It displays the retrieved information on its local LCD. Available readings include:

- Real-time parameters
- Energy measurements
- Demand measurements
- Power quality
- I/O status

Compatible meters include:

- AcuRev 1320
- Acuvim II
- AcuRev 4100

5.2 Gateway Role

The AcuHMI-1-4 model also functions as a Modbus TCP pass-through gateway, allowing upstream systems to communicate with connected downstream meters. The gateway supports:

- Up to 4 concurrent Modbus TCP client connections from SCADA, BMS, or other upstream systems.
- Routes each request to the corresponding downstream meter via RS485 or Ethernet.
- Communication with the connected meters based on the configured device list.

INFO

The module forwards requests transparently without caching or storing the meter data.

5.3 Network Topology Options

TOPOLOGY	DESCRIPTION
Star	Standard Installation. Connect one Ethernet port to network switch. The second port can remain unused or be used for laptop access.
Daisy Chain	Connect ETH2 port of AcuHMI-1-4 model to ETH1 of a downstream device and continue connection in daisy-chain. Set Ethernet Mode to **Dual ETH (No RSTP).**
Ring	Connect Ethernet ports in a daisy chain topology as described above. For a ring topology, connect ETH1 of the first device and ETH2 of the last device to an RSTP-capable network switch to close the loop and establish a redundant network path. Set Ethernet Mode to **RSTP Enable** on all devices.

INFO

RSTP is enabled by default. Verify the Ethernet operating mode before establishing a ring or daisy-chain connection.

In daisy-chain topology, a broken Ethernet cable or powered-off device will interrupt communication with all downstream devices beyond the point of failure.

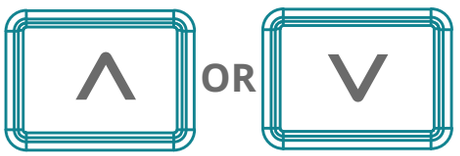
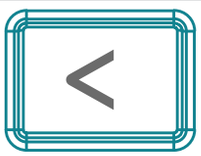
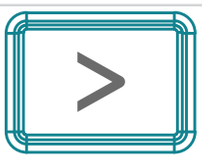
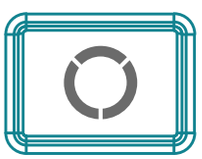
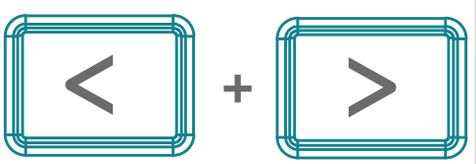
In ring topology, if an Ethernet cable or device fails, RSTP allows communication to continue through the alternate network path.

A single AcuHMI-1-4 model supports up to 8 downstream meters and up to 4 concurrent upstream Modbus TCP connections.

6. Navigation Keys and Menu Structure

6.1 Keys Function

Viewing and configuration on the HMI are performed using the five physical buttons on the front panel. Configuration is also possible with the Acuview 2 software through Modbus connection.

KEY	FUNCTION
	• Moves the highlight selection. • Changes a value or option during edit.
	• Switches to the previous page. • Select the previous digit during edit.
	• Switches to the next page. • Select the next digit during edit.
	• Opens the highlighted selection. • Confirms a selection. • Enters edit mode. • Saves an edited value.
	• Press simultaneously to return to previous menu. • Cancel an operation. • Exit edit mode.

6.2 Menu Structure

The main menu provides access to connected meter information and system settings.

Device List

Displays the connected meters with status indication. It includes:

- **Reading:** Provides access to real-time, energy, demand, power quality, and I/O status.
- **Settings:** Access with password to view meter wiring, CT/PT, demand, and communication.
- **Info:** Displays the connected meter model, serial number, MAC address, hardware version, firmware version, bootloader version, and manufacturer.

INFO

I/O status is not visible for Acuvim II series meter.

Relay output page is not visible for AcuRev 1320.

System

Access to the module settings and device information.

- **Settings:** Requires a password to configure Modbus, Ethernet, and other system settings.
    - **Modbus:** View Modbus address, RS485 settings, and TCP settings.
    - **Ethernet:** View Ethernet mode, DHCP, IP address, and DNS settings.
    - **Others:** View backlight time, change password, factory reset, and reset network.
- **AcuHMI-1-4 Info:** Displays the HMI model, serial number, MAC address, hardware version, firmware version, bootloader version, and manufacturer.

7. Network Configuration

The module is shipped with the following default network settings:

SETTING	DEFAULT VALUE
Password	0000
IP Mode	DHCP Disable
IP Address	192.168.1.254
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
RS485 Mode	Master
RS485 Baud Rate	19200 bps
RS485 Parity Bit	None
RS485 Stop Bit	1
Modbus TCP Port	502
Modbus Address	1
Modbus Timeout	1000 ms
Ethernet Mode	RSTP Enabled
DNS1	8.8.8.8
DNS2	8.8.4.4
Pass-Through	Enabled

7.1 Configure Ethernet

1. From the main screen, navigate to **System → Settings.**
2. Press  to access settings and enter the password.
3. Use the  or  navigation keys to navigate to the Ethernet page.
4. Set **DHCP Enable** to **Enable or Disable.**
5. If DHCP is disabled, configure the following parameters as required:
    - Edit IP Address
    - Subnet Mask
    - Gateway
6. Press  to save.

7.2 Configure RS485

1. From the main screen, navigate to **System → Settings.**
2. Press  to access settings and enter the password.
3. Upon entering the password, the Modbus page will open.
4. Configure the RS485 Baud Rate.
5. Configure the parity as required to **Even / Odd / None 1 / None 2** to match the connected meter(s).
6. Press  to save.

The new settings are applied immediately to both RS485 and Ethernet configuration.

8. Meter Addition and Device Connection

The module supports up to 8 meters connected simultaneously. Meters are added and configured through the Acuview 2 software: www.accuenergy.com/acuview-2-software

8.1 Adding Meters using Acuview 2

1. Open Acuview 2 and navigate to **Connection → Add Connection.**
2. Select AcuACHMI as device model.
3. For Modbus TCP communication, connect to the AcuHMI-1-4 using port 502.
4. For Modbus RTU communication, connect via RS485. The default RS485 mode is Master, but for RS485 communication with Acuview 2, change the Modbus RTU mode to Slave.
5. Navigate to **Setting → General**
6. Click **Add** in the **Device Info** section.
7. Enter a meter name of up to 16 characters and select meter type including AcuRev 1320, Acuvim II, or AcuRev 4100.
8. Enter the meter's Modbus Slave ID ranging from 1 to 247.
9. Click **Edit** to select the communication mode as either **RTU** for Modbus RS485 communication or **TCP** for Modbus TCP communication.
10. For Modbus TCP communication, enter the meter's IP address and port which is 502 by default.
11. Adjust the **Modbus timeout** if required, the default is 1000 ms.

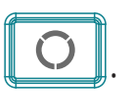
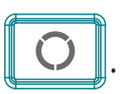
12. If upstream gateway access is required, set the **Assigned ID,** which must be unique across all configured meters and must not duplicate the Modbus address of the AcuHMI-1-4 model.

13. Click **Update** to write the settings.

The meter appears in the HMI Device List with a status indicator.

COLOUR	STATUS
Green	Online
Yellow	Querying
Red	Offline

8.2 Viewing Connected Meter Readings

1. From the main screen, select **Device List** and press .
2. Use  or  to highlight the required meter and press .
3. Select **Reading** and press , then choose real-time, energy, demand, power quality, or I/O status and press .
4. Use  or  to switch between parameter pages.
5. Use  or  to switch between available measurement groups:
   - AcuRev 4100: System, User Channel and Input Channel.
   - AcuRev 1320 and Acuvim II: System and Summation.
6. Press  and  simultaneously to return to previous menu.

9. Troubleshooting

OBSERVED ERROR	POSSIBLE CAUSE	RECOMMENDED ACTION
No Display	No Power Supply or Polarity Reversed	Verify 12- 36 VDC at Power Terminal. Check Polarity of Wiring.
Offline Meter Status or Red in Colour	Incorrect Slave ID, IP Address, or Communication Wiring	Verify RS485 Wiring, Baud Rate, and Slave ID. Verify Ethernet Link and IP Address.
Querying Meter Status or Yellow in Colour	Initial Connection or Page Switching	Allow Few Seconds for Meter to Respond.
RS485 Communication Unstable	Long Cable without Termination or Bus Reflection	Install 120 Ω Termination at Both Bus Ends. Verify Shield Grounding.
Cannot Ping AcuHMI-1-4	IP Conflict or Incorrect Subnet	Check IP Settings **in System → Settings → Ethernet.** Confirm gateway and subnet.
Modbus TCP Pass-through Request Time Out (Exception 0x0B)	Incorrect Pass-through ID, Downstream Meter Offline, or Insufficient Device Modbus Timeout	Verify Pass-through ID Mapping in Device List. Verify Downstream Meter Status. Increase Device Modbus Timeout.
Ethernet Port LEDs Off	Damaged Cable, or Disabled Port	Replace Patch Cable. Verify Upstream Switch Port is Active.

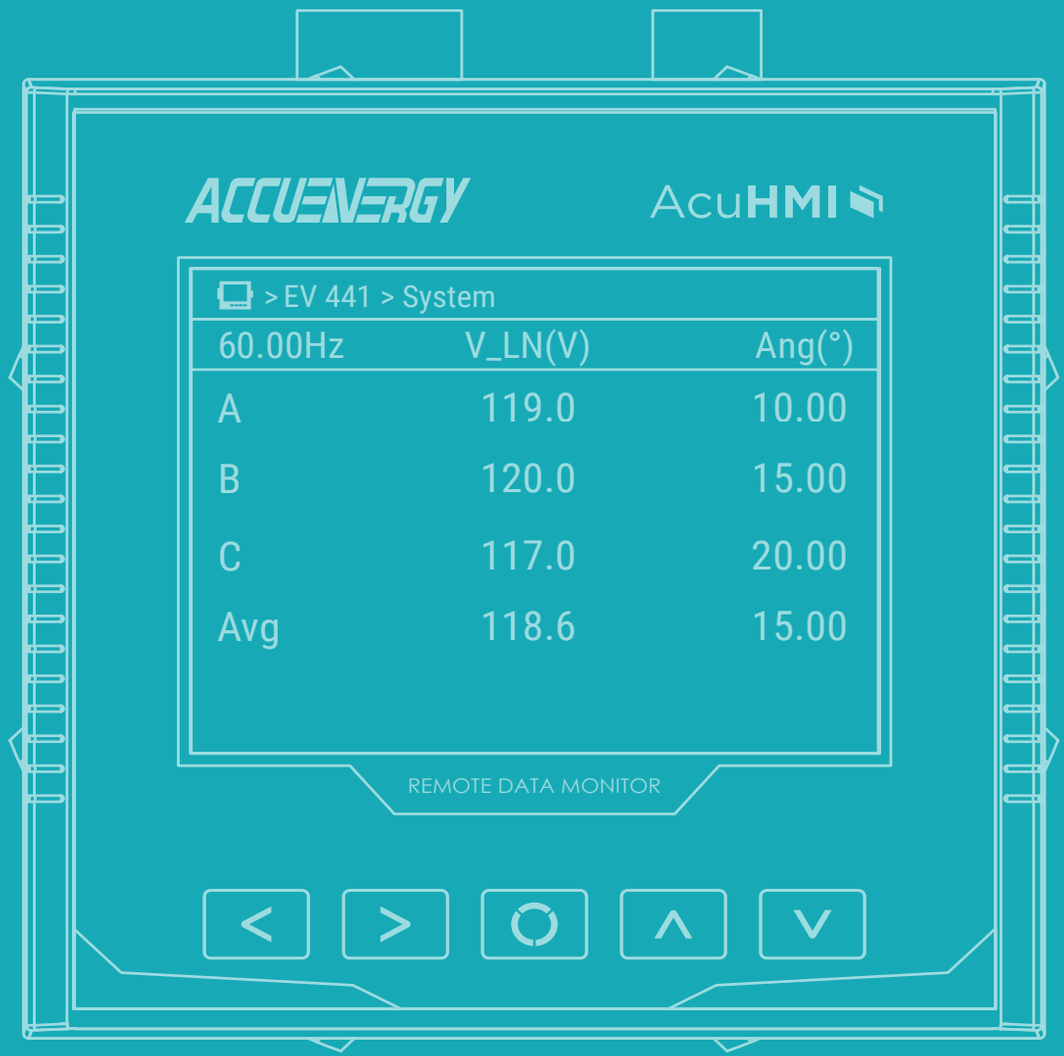
INFO

If the issue persists, record the model, serial number and firmware version from **System → AcuHMI-1-4 Info** and contact Accuenergy Technical Support.

10. Specifications Summary

SPECIFICATION	DESCRIPTION
Power Supply	12–36 VDC, ≤ 3 W Typical
Communications Protocols	Modbus RTU Modbus TCP
Maximum Connected Meters	8
Maximum Concurrent TCP Connections	4
Display	81.28 mm (3.2") Diagonal Colour LCD
Mounting	Panel Mount DIN Rail
Front Panel Rating	IP54
Certifications	UL, CE, RoHS

For entire specifications, refer to the datasheet.



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Specs Subject To Change Without Notice.