

AcuDC 260 Series
DC Energy Meter
User Manual



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Please read this manual carefully before installation, operation, and maintenance of the AcuDC 260 Series meter.

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Safety Notice

ELECTRIC SHOCK DANGER SAFETY WARNING

Please read this document carefully before the installation, operation, and maintenance of the AcuDC 260 Series meter.

If the equipment is used in a manner not specified by Accuenergy, the protection provided by the equipment may be impaired.

Prior to installation, maintenance or repair, the equipment must be de-energized and grounded. All maintenance work must be performed by a qualified professional who has received formal training and has experience with high voltage and current devices.

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

NOTE: THERE IS NO REQUIRED PREVENTIVE MAINTENANCE OR INSPECTION NECESSARY FOR SAFETY. HOWEVER, ANY REPAIR OR MAINTENANCE SHOULD BE PERFORMED BY THE FACTORY.

DISCONNECT DEVICE: The following part serves as the designated disconnect device for this equipment.

A SWITCH OR CIRCUIT-BREAKER MUST BE INCLUDED IN THE INSTALLATION.

THE SWITCH MUST BE IN CLOSE PROXIMITY TO THE EQUIPMENT AND WITHIN EASY REACH OF THE OPERATOR. THE SWITCH SHALL BE MARKED AS THE DISCONNECTING DEVICE FOR THE EQUIPMENT.

Important Symbols

The following symbols can be found either in this document or on the AcuDC 260 Series meter.



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



WARNING SYMBOL: Information about a hazardous circumstance, if not considered, may result in injury or death.



DOUBLE INSULATION SYMBOL: Indicates the device is double insulated and does not require to be connected to an electrical earthing.



ALERT SYMBOL: Indicate the operation may lead to device malfunction or potential data loss.



NOTE SYMBOL: An advance notice to provide additional information before an action is taken by the user.

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Chapter 1: Introduction

1.1 Meter Overview

The AcuDC-260 Series is a high-accuracy DC power and energy meter designed for monitoring and billing across a wide range of DC power systems, including EV charging, energy storage, data centers, and industrial DC applications. It supports one DC voltage input and two DC current inputs using shunt or Hall effect sensors, providing 0.1% voltage accuracy, current accuracy down to 0.2%, and 0.5% accuracy for power and energy depending on model configuration and certification requirements. The series features cable-loss compensation, tamper-proof metrology seal protection, and RS485/Modbus RTU plus Ethernet/Modbus TCP communication. Depending on the model, the meter supports advanced data logging or legal-for-trade transparency functions such as Transaction Log and Eichlog for EV billing compliance. Certified variants meet UL, MID, and PTB requirements, enabling the AcuDC-260 Series to serve both general-purpose DC monitoring and revenue-grade EV metering applications in specific global regions.

1.2 Areas of Application

- DC Fast Electric Vehicle Charging Stations
- Data Centers
- Renewable Energy Generation & Storage
- Solar PV
- Wind turbine power generation
- DC Energy Management Systems
- Power Distribution Systems
- Industrial DC Control Systems
- DC Grids
- Light Rail Transit (LRT) Systems
- Cellular Tower Monitoring

1.3 Key Features

Multi-Function Meter

The AcuDC-260 series provides comprehensive data collection and processing function for measuring key power and energy parameters. The AcuDC-260 series can also perform demand metering, max and min statistical recording, energy accumulation, and data logging.

High Accuracy Measurements

- EN50470-4 Class C and IEC 62053-41 Class 0.5
- Direct connected voltage measurement at 0.1% accuracy - 12 V to 1000 V (AcuDC 262), 60 V to 1000 V (AcuDC 261)

AcuDC-261 MID/PTB Models

Voltage Accuracy: ±0.1% (60 V to 1000 V)

Current Accuracy: ±0.5% (MID 0.5 accuracy category for DC current circuits), shunt input types 400/600 A

Power / Energy / Charge / Demand Accuracy: Class 0.5 (±0.5%)

AcuDC-262 UL Models

Voltage Accuracy: ±0.1% (12 V to 1000 V)

Current Accuracy: ±0.2% (2%In ~100In, In is Rated current) Hall effect sensor or shunt input types: A1/A2/A3.

Power / Energy / Charge Accuracy: Class 0.5 (±0.5%)

Easy to Use

All metering data and setting parameters can be accessed by using either the navigation keys on the AcuDC-260 or by using Modbus via the communication port. Setting parameters are stored in the EEPROM (Electrically Erasable Programmable Read-Only Memory), allowing content to be preserved when the AcuDC-260 is powered off.

Global Safety Compliance

The AcuDC-260 is designed according to industrial standards. It is designed and tested to safely withstand 5,000 VAC for one minute without arcing or failing, delivering safe and reliable performance with specific models meeting international requirements for MID, CE, or UL certifications.

1.4 Specifications

Metering				
Parameter	**Accuracy**	**Resolution**	**Update Rate**	**Range**
Voltage	0.1%	0.01 V	20 ms & 100 ms	AcuDC-261: 60.00-1000.00V+20% AcuDC-262: 12.00-1000.00V+20%
Current	0.2%	0.001 A	20 ms & 100 ms	AcuDC-261-1000V-400A-P2-MID :0 ~400A (DC261) AcuDC-261-1000V-600A-P2-MID :0 ~600A (DC261)
	0.2%	0.001 A	20 ms & 100 ms	AcuDC-262-1000V-A1-P2: -100 ~ 100mV AcuDC-262-1000V-A2-P2: 4 ~ 20 mA AcuDC-262-1000V-A3-P2: -5 ~ 5V
Power	0.5%	1 W	20 ms & 100 ms	-9999.999~9999.999 kW
Energy	0.5%	0.1 Wh	100 ms	-999999999999.9999~999999999999.9999 kWh
Charge	0.5%	0.0001 Ah	100 ms	-999999999999.9999~999999999999.9999 Ah
Current Demand	0.5%	0.001 A	Configurable	AcuDC-262-1000V-A1-P2: 20.000 ~50000.000A AcuDC-262-1000V-A2-P2: 20.000 ~50000.000A AcuDC-262-1000V-A3-P2: 20.000 ~50000.000A
Power Demand	0.5%	1 W	Configurable	-9999.999~9999.999 kW
Ripple Factor	N/A	0.001%	100 ms	0.000~100.000%

Input	AcuDC-261	AcuDC-262
CURRENT INPUTS (Secondary)		
Rated Current input	400A, 600A	A1: Rated at 100mV, input range -100~100 mV A2: Rated at 20mA, input range 4~20 mA A3: Rated at 5V, input range -5~5 V
Withstand	30 x Imax for 0.5 Second	
Pickup Current (Starting Current)	400A: 0.32A 600A: 0.48A	A1: 0.1 mV A2: 0.02 mA A3: 0.005 V
Accuracy	0.5%	0.2% (2%In ~100In, In is Rated current)
VOLTAGE INPUTS		
Metering Range	0~1000V+20%	
Extended Metering Range	Measure from 1000V to 1200V without specific accuracy requirements.	
Withstand	5.0kV RMS Isolation for 1 Minute	
Pickup Voltage	10 V	

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Input	AcuDC-261	AcuDC-262
Accuracy	0.1% (60V~1000V)	0.1% (12V~1000V)
Rated Impulse Voltage (Vimp)	9600V	
ENERGY ACCURACY		
Energy	IEC 62053-41- 0.5% Accuracy	
Charge	0.5% (2%In ~100In, In is Rated Current)	
COMMUNICATION		
Modbus RTU	Modbus RTU via RS485 Port 2-Wire Shielded Twisted Pair Cable Connection 2400~115200bps Maximum Data Rate: 500kbps Common-Mode Output Voltage: 3.0V Differential Output Voltage: 1.5V ~ 3.6V Short-Circuit Output Current: 200mA Receiver: Common Mode Input: −7V < VCM <+12V Differential Input Threshold Voltage: −200mV ~ −30mV	
Ethernet	Ethernet 10M/100M BaseT Modbus TCP/IP	
DC CONTROL POWER		
Operating Range	12V~48VDC SELV	
Burden	<3W	
OPERATING ENIVRONMENT		
Operating Temperature	–25°C to +70°C (–13°F to +158°F)	
Storage Temperature	–40°C to +85°C (–40°F to +185°F)	
Rated Operating Relative Humidity	0% to 75% RH	
Operation Limit Relative Humidity	0% to 95% RH	
Storage and Shipping Limit Relative Humidity	0% to 95% RH	
Altitude	0~2000m	
OVC Category	OVC II	
Pollution Degree	PD 2	

Input	AcuDC-261	AcuDC-262
MECHANICAL		
Dimensions	174.0mm x 96.0mm x 71.7mm (6.85" x 3.78" x 2.82") Sealed Shunt 85.0mm x 175.mm x 71.0mm (3.35" x 6.89" x 2.79")	174.0mm x 96.0mm x 71.7mm (6.85" x 3.78" x 2.82")
IP Degree or Protection	IP41 IP54: Front-end HMI. IP30 Recommended to install in a cabinet or enclosure with an IP54 rating or higher.	IP30 Recommended to install in a cabinet or enclosure with an IP54 rating or higher.
Environment	Indoor and Dry	
STANDARD COMPLIANCE & CERTIFICATIONS		
Measurement Standard	EN50470-4 Class C, PTB-A 50.7, PTB- 8.51-MB10-Krypto, REA 6A	IEC 62053-41
EMC Standard	EN55032 Class A, FFC Part 15 Class A	
Safety Standard	UL 61010-1, UL 61010-2-30 Measurement Category II for Measuring Input Circuits, Overvoltage Category II for Mains Circuits.	

Table 1-1 AcuDC-261 Function List

Function		Parameter
Real-Time Measuring	Basic	V_M, V1_Compensated, V2_Compensated ISum, I1, I2, PSum, P1, P2, Ripple Factor U, Ripple Factor I1, Ripple Factor I2,
Real-Time Energy	Energy	Import Energy1, Import Energy2, Import Energy Sum, Export Energy1, Export Energy2, Export Energy Sum, Net Energy1, Net Energy2, Net Energy Sum, Total Energy1, Total Energy2, Total Energy Sum,
	Charge	Import Charge1, Import Charge 2, Import Charge Sum, Export Charge1, Export Charge2, Export Charge Sum, Net Charge 1, Net Charge 2, Net Charge Sum, Total Charge 1, Total Charge 2, Total Charge Sum,

Function		Parameter
Cable Loss Compensation	Voltage	V Measure, V1_Compensated, V2_Compensated
Max/Min with Timestamps		Volts_max, Volts_min I1_max, I1_min I2_max, I2_min ISum _max, ISum _min P1_max, P1_min P2_max, P2_min PSum _max, PSum _min Ripple Factor U _max, Ripple Factor U _min Ripple Factor I1_max, Ripple Factor I1_min Ripple Factor I2_max, Ripple Factor I2_min
Statistics	MAX with Time Stamp MIN with Time Stamp	Voltage, Current, Power, Ripple Factor are timestamped. Max for each demand with timestamp.
Time	Device Run-Time	Hours
	Device Load-Time	Hours
	Device Clock	Year-Month-Date-Hour:Minutes:Seconds, Weekdays
Onboard Memory	Bytes	16MB
Display	LCD	256x64 Pixel

Table 1-2 AcuDC-262 Function List

Function		Parameter
Real-Time Measuring	Basic	Volts, V1_Compensated, V2_Compensated ISum, I1, I2, PSum, P1, P2, Ripple Factor U, Ripple Factor I1, Ripple Factor I2,
	Demand	Demand I Sum, Demand I1, Demand I2, Demand P Sum, Demand P1, Demand P2,
Real-Time Energy	Energy	Import Energy1, Import Energy2, Import Energy Sum, Export Energy1, Export Energy2, Export Energy Sum, Net Energy1, Net Energy2, Net Energy Sum, Total Energy1, Total Energy2, Total Energy Sum,
	Charge	Import Charge1, Import Charge 2, Import Charge Sum, Export Charge1, Export Charge2, Export Charge Sum, Net Charge 1, Net Charge 2, Net Charge Sum, Total Charge 1, Total Charge 2, Total Charge Sum,
Cable Loss Compensation	Voltage	Vmeasure, V1_Compensated, V2_Compensated
Max/Min with Timestamps		Voltage_max, Voltage_min I1_max, I1_min I2_max, I2_min ISum _max, ISum _min P1_max, P1_min P2_max, P2_min PSum _max, PSum _min Ripple Factor U _max, Ripple Factor U _min Ripple Factor I1_max, Ripple Factor I1_min Ripple Factor I2_max, Ripple Factor I2_min I1 (Demand) _max, I2 (Demand) _max, ISum (Demand) _max, P1 (Demand) _max, P2 (Demand) _max, P Sum (Demand) _max,

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Function		Parameter
Data Logging	Data Logging 1 Data Logging 2 Data Logging 3	Volts (float), V1_Compensated, V2_Compensated I1 (float), I2 (float), ISum (float), P1 (float), P2 (float), Psum (float), Ripple Factor U (float), Ripple Factor I1 (float), Ripple Factor I2 (float), Demand I1 (float), Demand I2 (float), Demand I Sum (float), Demand P1 (float), Demand P2 (float), Demand P Sum (float), Volts(int), I1 (int), I2 (int), ISum (int), P1(int), P2(int), Psum(int), Ripple Factor U (int), Ripple Factor I1 (int), Ripple Factor I2 (int), Demand I1 (int), Demand I2 (int), Demand I Sum (int), Demand P1 (int), Demand P2 (int), Demand P Sum (int), Import Energy1, Export Energy1, Net Energy1, Total Energy1, Import Energy2, Export Energy2, Net Energy2, Total Energy2, Import Energy Sum, Export Energy Sum, Net Energy Sum, Total Energy Sum, Import Charge1, Export Charge1, Net Charge1, Total Charge1, Import Charge2, Export Charge2, Net Charge2, Total Charge2, Import Charge Sum, Export Charge Sum, Net Charge Sum, Total Charge Sum
Trend Logging for Max/Min/ Average	Data Logging 4	Volts (float), V1_Compensated, V2_Compensated I1 (float), I2 (float), ISum (float), P1 (float), P2 (float), Psum (float), Ripple Factor U (float), Ripple Factor I1 (float), Ripple Factor I2 (float), Demand I1 (float), Demand I2 (float), Demand I Sum (float), Demand P1 (float), Demand P2 (float), Demand P Sum (float),
Statistics	MAX with Time Stamp MIN with Time Stamp	Voltage, Current, Power, Ripple Factor are timestamped. Max for each demand with timestamp.
Time	Device Run-Time	Hours
	Device Load-Time	Hours
	Device Clock	Year-Month-Date-Hour:Minutes:Seconds, Weekdays
Onboard Memory	Bytes	16MB
Display	LCD	256x64 Pixel

Chapter 2: Installation

AcuDC-260 Series Meter Considerations Before Installation



ELECTRIC HAZARD

The installation must be performed by qualified, competent, accredited professionals who have received formal training and have experience with high-voltage and current devices. Appropriate safety wear (i.e. gloves, glasses, arc flush suit, etc.) is mandatory to ensure safe installation.

Caution must be taken before working on voltage and current channels, including cables and terminal blocks.

Do not supply input voltage above the rated maximum limit of the meter and devices connected to it. Before energizing the meter, please refer to the meter's label and specifications.

Do not perform high voltage tests or insulation experiments to output, input, or communication terminals.

Use dry cloth to wipe the meter if necessary.



WARNING

Unsuitable environment may affect the measurement accuracy, system function, cause hardware damage, or even lead to safety hazards.

Before installation, make sure the application meets the requirements from the specific AcuDC-260 Series models, including:

Models	AcuDC-261	AcuDC-262
Power Supply	12-48VDC SELV	12-48VDC SELV
Voltage Input	0-1000V +20%	0-1000V +20%
Current Input	400A, 600A	A1: -100~100mV A2: 4~20mA A3: -5~5V
Over Voltage Category	OVC II	OVC II
Altitude	0~2000m	0~2000m
Pollution Degree	PD 2	PD 2
Operating Temperature	–25°C to +70°C (–13°F to +158°F)	–25°C to +70°C (–13°F to +158°F)
Storage Temperature	–40°C to +85°C (–40°F to +185°F)	–40°C to +85°C (–40°F to +185°F)
Operating Relative Humidity Range	0% to 75% RH	0% to 75% RH

2.1 Appearance and Dimensions

The AcuDC-260 Series has an LCD display located on the front and DIN rail mount on the rear. The following figures provide the front view and side view of AcuDC-260 Series.

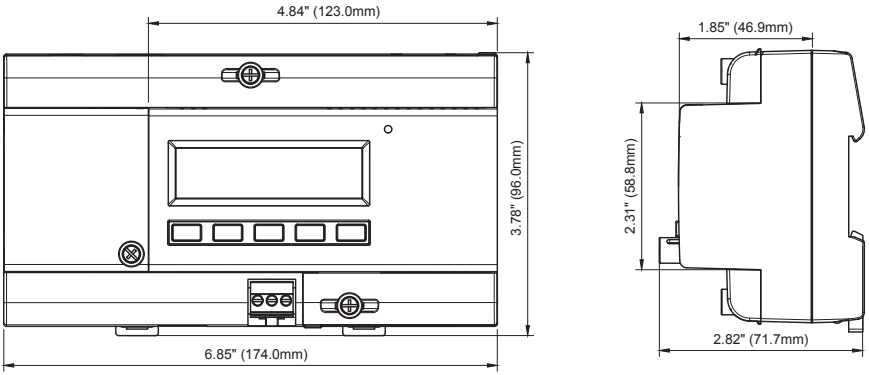


Figure 2-1 AcuDC-260 Series View Diagram with Cover

Table 2-1 AcuDC-260 Series Part Name and Description

Part Name	Description
1) LCD Screen	Backlight 256x64 pixel screen.
2) Front Casing	Protective mounting case for display and controls when installed on a panel.
3) Navigation Key	Five keys for navigating the LCD screen and configure settings.
4) DIN Rail	Used for installation onto a 35mm DIN rail mount.
5) Voltage Input Terminals	Used for voltage input.
6) Current Input Terminals	Used for current input.
7) Power Supply Terminals	12V~48VDC SELV control power input.
8) RS485 Terminal	Modbus RTU RS485 communication port.

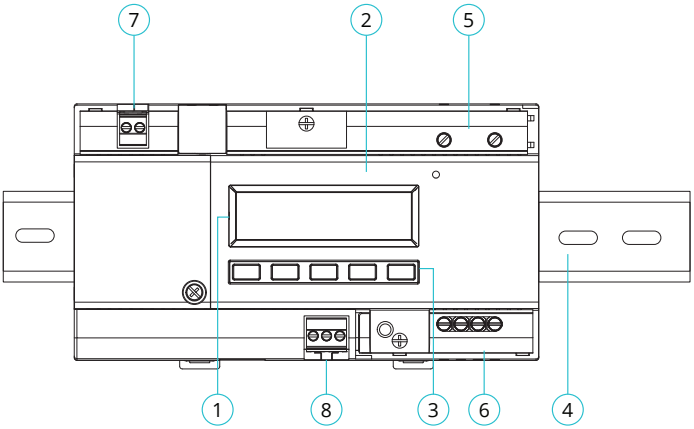


Figure 2-2 AcuDC-260 Series Part Identification Diagram

2.2 Din Rail Mount Installation

The following instructions describe how to mount the AcuDC-260 Series meter onto a standard 35mm (1.38in) DIN rail.

Installation Steps

1. From the back of the AcuDC-260 Series, pull down the two clip locks in unison, as shown in ① of Figure 2-3.
2. Position the back of the AcuDC-260 Series so it is facing the DIN rail. Place the AcuDC-260 Series two upper mounting brackets over the top of the DIN rail groove. Fit the AcuDC-260 Series onto the bottom mounting bracket as illustrated in ② of Figure 2-3.

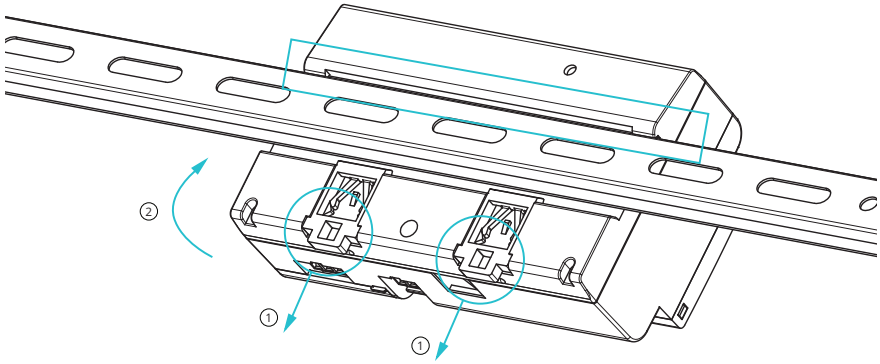


Figure 2-3 Mount AcuDC-260 Series onto DIN Rail Bracket

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3. Push the two clips back up ③ to securely lock the AcuDC-260 Series onto the DIN rail, as shown in Figure 2-4.

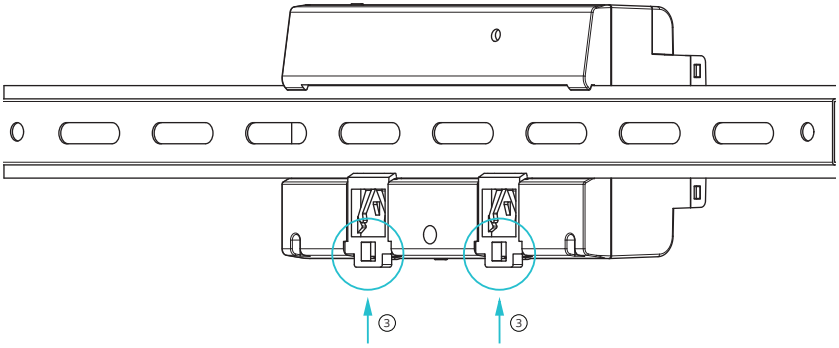


Figure 2-4 Lock Clips to Secure AcuDC-260 Series

2.3 Wiring Configuration

2.3.1 Power Supply Requirement

A 12-48VDC SELV power supply is required for the AcuDC-260 Series to operate. The maximum current consumption is 0.5A @ 12Vdc.

WARNING

An NRTL-approved 15A circuit breaker shall be included in the installation.

It must be in close proximity to the equipment, within immediate reach of the operator, and shall be marked as the disconnecting device for the equipment.

To connect the auxiliary power adapter to the DC power port, ensure that a 12-48VDC Class 1 power supply (sold separately) is used for the meter. The maximum current consumption is 0.25A at 12VDC.

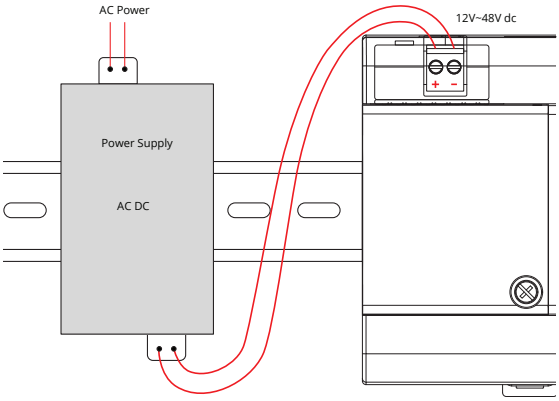


Figure 2-5 AcuDC-260 Series Power Supply

2.3.2 Voltage Input Wiring

The AcuDC-260 Series supports one voltage input channel from 0 to 1000 VDC OVCII. A fuse, typical 1A/1500Vdc, should be used in the voltage input loop.

To connect the voltage input terminals:

1. Use a 3 x 0.5 mm (DIN 5264) screwdriver to loosen the terminal screw from the meter.
2. Insert the copper wire (22AWG~18AWG) into the terminal. Fasten the screw to secure the wire.

The meter is wired according to the following diagram:

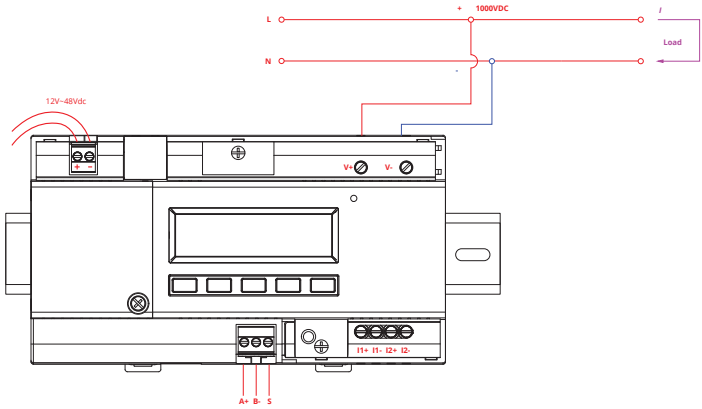


Figure 2-6 AcuDC-260 series Voltage Input Wiring

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2.3.3 Current Input Wiring

The AcuDC-260 Series supports up to two current input channels.

To connect the current input terminals:

1. Use a 3 x 0.5 mm (DIN 5264) screwdriver to loosen the terminal screw from the meter.
2. Insert the copper wire (22AWG~18AWG) into the terminal. Fasten the screw to secure the wire.

The meter supports either shunt input or hall effect sensor input, depending on the selected models.

2.3.3.1 Shunt Current Input

The following models are wired with DC shunts according to the diagram below.

Models	AcuDC-261-1000V-600A-P2-MID AcuDC-261-1000V-400A-P2-MID AcuDC-262-1000V-A1-P2 (0-100mV shunt)

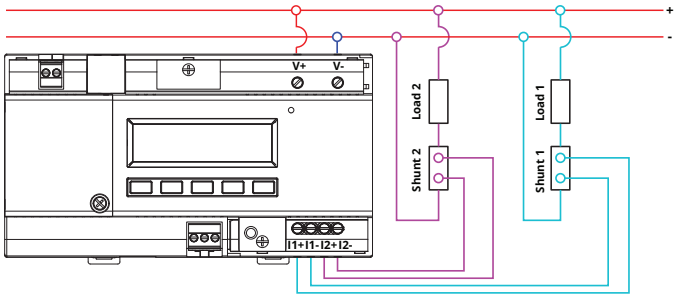


Figure 2-7 Shunt Current Input Wiring

NOTE

For shunt-based current measurement, the load must be connected upstream of the shunt so that the shunt is installed in series with the load current path. The V+, V−, I+, and I− terminals are measurement inputs only; connecting the load to these terminals or placing the load downstream of the shunt may result in a short circuit and can cause incorrect measurements or equipment damage.

2.3.3.2 Hall Effect Sensor Current Input

The following models are wired with Hall effect sensors according to the diagram below.

Models	AcuDC-262-1000V-A2-P2 (mA Hall) AcuDC-262-1000V-A3-P2 (5V Hall)

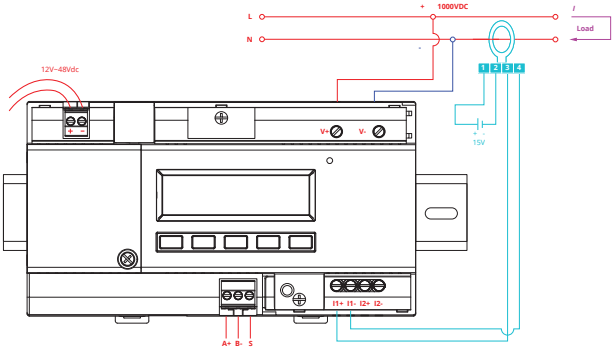


Figure 2-8 Hall Effect Sensor Current Input Wiring

2.3.4 Communication

2.3.4.1 RS485

The AcuDC-260 Series supports serial RS485 communication. The terminals are denoted as A+, B- and S.

- A+ is the positive differential terminal.
- B- is the negative differential terminal.
- S is used for shield connection.

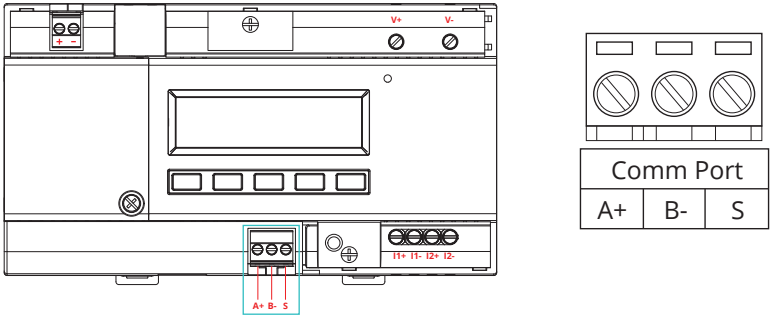


Figure 2-9 Communication Port

The maximum distance of the cable should not exceed 1200m. This cable distance should be shorter if more devices are connected to the same communication link or if using a higher baud rate.

If the master device is equipped with an RS232 port instead of an RS485 port, an RS232-to-RS485 converter is required.

Recommendations:

- Use high quality shielded twisted pair cable, AWG22.
- Avoid single point grounding.
- Avoid T type connection topology.
- Keep communication far away from sources of electrical noise.
- When several devices are daisy chained, a resistor (typical value 120-300Ω, 0.25W) should be used at the end of the chain.

WARNING

Safety Considerations

- Do not install or service the unit while powered.
- Ensure all wiring complies with local electrical codes.

WARNING

Improper Installation may void the warranty or lead to equipment failure or personal injury.

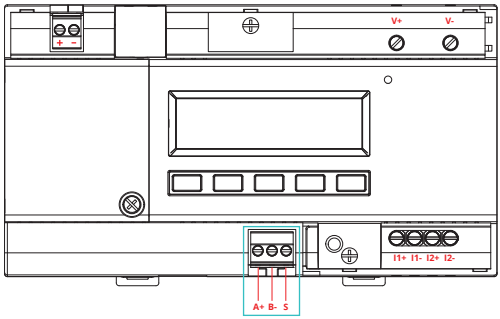


Figure 2-10 AcuDC-260 RS485 Wiring

2.3.4.2 Ethernet

The AcuDC-260 Series includes a single RJ45 connector to access the Ethernet network. It is recommended to use a CAT 5 cable. The mechanical and electrical characteristics of the connector are consistent with the requirements of IEC 60603-7.

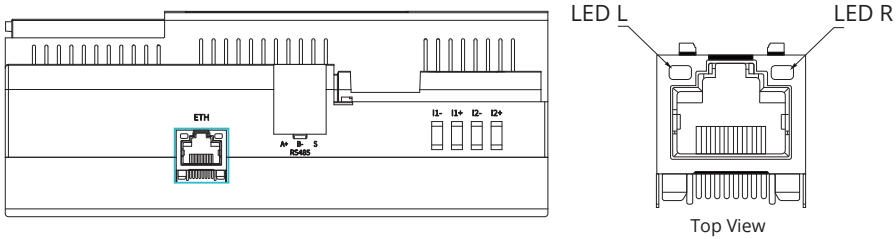


Figure 2-11 AcuDC-260 RS485 Connector

Table 2-2 Ethernet Pin Index Chart

Pin Number	Name	Description
1	TX+	Transmit Data +
2	TX-	Transmit Data -
3	RX+	Receive Data +
4	n/c	Not Connected
5	n/c	Not Connected
6	RX-	Receive Data -
7	n/c	Not Connected
8	n/c	Not Connected

LED_L (Yellow): Displays the speed status. An illuminated LED indicates a transmission speed of 100Mbps. When the LED is off, it represents a speed of 10Mbps.

LED_R (Green): Displays the link and activity status. An illuminated LED indicates the Ethernet port is establishing a connection. When the LED is blinking, it indicates there is data transmission activity.

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2.3.5 Wiring Recommendation

To connect and disconnect the wires, use a screwdriver 3 x 0.5 mm (DIN 5264). Copper wires with the following specifications shall be used for wiring:

Table 2-3 Wiring Specification Chart

Terminal Name	Functions	Terminal Type	Wire Range	Terminal Cross Section	Screw Torque	Temperature Rating
+, -	DC Power Port	Plated Welding Type	22AWG ~ 18AWG	2.5mm2	0.5N.m	105°C
V+, V-, I1+, I1-, I2+, I2-	Voltage/Current Input Port	Plated Welding Type	22AWG ~ 18AWG	2.5mm2	0.5N.m	105°C
RS485 A+, B-, S	RS485 Communication Port	Plated Welding Type	22AWG ~ 18AWG	2.5mm2	0.4N.m	105°C
ETH	Ethernet Communication Port	Standard 10/100 Mbps Cable	-	-	-	105°C

NOTE

Copper conductors are required for wiring.

Chapter 3: AcuDC-261 Meter Display & Parameter Settings

This chapter explains how to operate the AcuDC-261 meter for viewing real-time measurement data and configuring settings using the display screen and navigation keys. For more advanced configurations and explanation of each setting, refer to Chapter 5.

3.1 Display Panel and Navigation Keys

The front of the AcuDC-261 Series includes an LCD screen and five navigation keys. From left to right, these are the **Left**, **Right**, **Up**, **Down**, and **Enter** keys.



Figure 3-1 AcuDC-260 Series Display Panel and Navigation Keys

3.1.1 Using Navigation Keys

Navigating Between Screens

Use the **Left** or **Right** key to navigate to other submenu screens. To return to the Home screen press the **Left** and **Right** keys simultaneously.

How to Input Digits

Some settings require the user to input numbers on the screen. Use the **Left** and **Right** keys to move to the next adjacent digit. The **Up** and **Down** keys are used to change the selected digit. Press the **Enter** key to confirm the input.

The AcuDC-261 screen structure is illustrated in Figure 3-2.

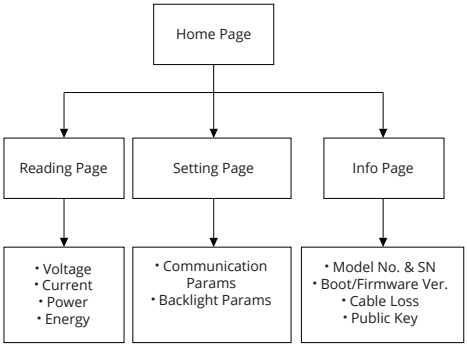


Figure 3-2 AcuDC-261 Display Screen Structure

3.1.2 Home Screen



Figure 3-3 AcuDC-261 Home Screen

SN	Display	Description
1	Reading	Voltage Current Power Energy Charge
2	Setting	Communication Parameters Backlight Parameters
3	Info (Information)	Model Number and Serial Number (S/N) Bootloader Version, Firmware Version, and Checksum Cable Loss Public Key MAC Address

NOTE

Pressing both the **Left** and **Right** keys simultaneously on any screen will return to the previous menu, while pressing the **ENTER** key will navigate to the selected screen.

3.2 Reading Screen

Home > Reading

The AcuDC-261screen features a Reading screen which includes voltage, current, power, energy and charge for instantaneous insights into the system's performance. Real-time metering data can also be accessed through Acuview 2, for more information refer to Chapter 5.

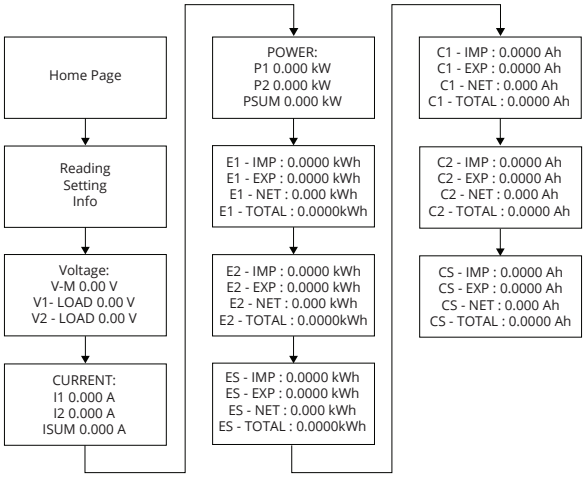


Figure 3-4 AcuDC-261 Reading Display Screen Structure

Navigation Instructions

Use the navigation keys to select **Reading** from the Home screen and press **Enter** to access the Reading screen.

3.2.1 Voltage

Home > Reading > Voltage

The voltage readings will be the first submenu screen when accessing the Reading section.

Use the **Left** or **Right** key to navigate to other submenu screens.

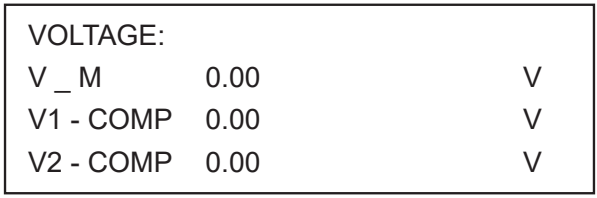


Figure 3-5 AcuDC-261 Reading Voltage Screen

The Voltage submenu screen displays various voltage readings such as measured voltage, which is the voltage level measured by the meter without considering the cable losses and compensated voltages which offset the voltage drop caused by the cable resistance.

Parameters	Description
V - M	Measured Voltage
V1 - LOAD	Compensated Voltage 1
V2 - LOAD	Compensated Voltage 2

3.2.2 Current

Home > Reading > Current

In the Reading section, from the Voltage screen use the navigation **Right** key to access the **Current** submenu screen.

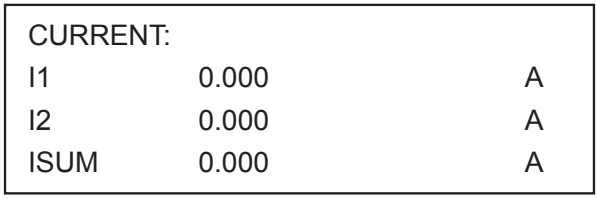


Figure 3-6 AcuDC-261 Current Screen

Parameters	Description
I1	Current 1
I2	Current 2
ISUM	Current Sum

3.2.3 Power

Home > Reading > Power

In the Reading screen, from the Current screen press the **Right** key to navigate to the Power submenu screen.

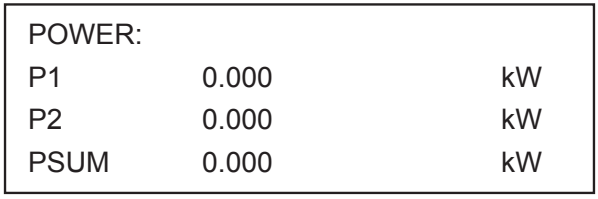


Figure 3-7 AcuDC-261 Power Screen

Parameters	Description
P1	Power 1
P2	Power 2
PSUM	Power Sum

3.2.4 Energy

Home > Reading > Energy

In the Reading screen, from the Current screen press the **Right** key to navigate to the E1/E2/ES Energy submenu screen.

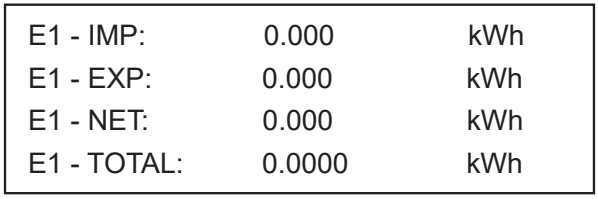


Figure 3-8a AcuDC-261 Channel 1 Energy Screen

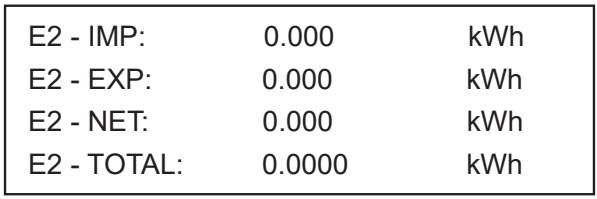


Figure 3-8b AcuDC-261 Channel 2 Energy Screen

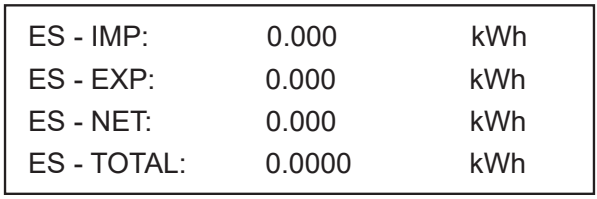


Figure 3-8c AcuDC-261 System Energy Screen

AcuDC-261 measures import, export, net and total energy, where import energy refers to the energy consumed (i.e. power flowing into the facility from the grid), and export energy refers to the energy generated (i.e. power flowing from the facility back to the grid). Net energy is the difference between the energy imported and exported over a specific period, while total energy is the sum of imported and exported energy over a specific period.

Parameters	Description
E1 – IMP	Import Energy 1
E1 – EXP	Export Energy 1
E1 – NET	Net Energy 1
E1 – TOTAL	Total Energy 1
E2 – IMP	Import Energy 2
E2 – EXP	Export Energy 2
E2 – NET	Net Energy 2
E2 – TOTAL	Total Energy 2
ES – IMP	Import Energy Sum
ES – EXP	Export Energy Sum
ES – NET	Net Energy Sum
ES – TOTAL	Total Energy Sum

3.2.5 Electrical Charge Screen

Home > Reading > Charge

In the Reading screen, from the Energy screen press Right key to navigate to the C1/C2/CS Charge submenu screen. It includes imported/exported /net/total electrical charge readings. For comprehensive information on Charge parameters, please refer to Chapter 5.

C1 - IMP:	0.000	Ah
C1 - EXP:	0.000	Ah
C1 - NET:	0.000	Ah
C1 - TOTAL:	0.0000	Ah

Figure 3-9a AcuDC-261 Charge1 Submenu Screen

C2 - IMP:	0.000	Ah
C2 - EXP:	0.000	Ah
C2 - NET:	0.000	Ah
C2 - TOTAL:	0.0000	Ah

Figure 3-9b AcuDC-261 Charge2 Submenu Screen

CS - IMP:	0.000	Ah
CS - EXP:	0.000	Ah
CS - NET:	0.000	Ah
CS - TOTAL:	0.0000	Ah

Figure 3-9c AcuDC-261 System Charge Submenu Screen

Import charge refers to the electric charges while power is flowing to the facility from the grid, and export charge refers to the electric charges while power is flowing out from the facility back to the grid. Net charge is the difference between the electric charges imported and exported over a specific period, while total charge is the sum of imported and exported electric charges over a specific period.

Parameters	Description
C1 – IMP	Import Charge 1
C1 – EXP	Export Charge 1
C1 – NET	Net Charge 1
C1 – TOTAL	Total Charge 1
C2 – IMP	Import Charge 2
C2 – EXP	Export Charge 2
C2 – NET	Net Charge 2
C2 – TOTAL	Total Charge 2
CS – IMP	Import Charge Sum
CS – EXP	Export Charge Sum
CS – NET	Net Charge Sum
CS – TOTAL	Total Charge Sum

NOTE

User can press the left key to go back to the previous menu.

3.3 Info Screen

Home > Info

The AcuDC-261 Info submenu screen shows device details and can be accessed directly from the Home screen. It includes details about the model, serial number, bootloader version, firmware release, cable loss, public key and MAC address. For comprehensive information on the info screen, please refer to Chapter 5.

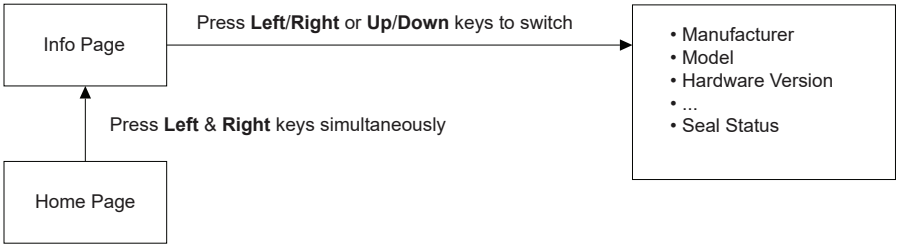


Figure 3-10 AcuDC-261 Info Screen Sequence

Navigate to the **INFO** on the Home screen and press **ENTER** to enter the Information screen.

3.3.1 Model & Serial Number

Home > Info > Model

To access the AcuDC-261 model and serial number details from the Info screen, press the **Enter** key to view the Model submenu screen. To return to the Home screen press the **Left** and **Right** keys simultaneously.

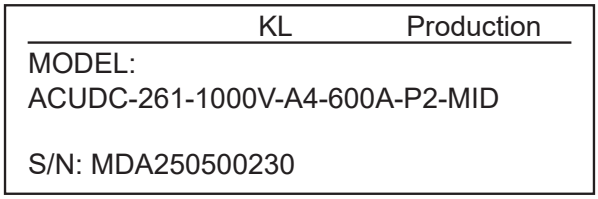


Figure 3-11 AcuDC-261 Model Info Screen

3.3.2 Bootloader & Firmware Version

Home > Info > Bootloader Version

To access the bootloader and firmware version details from the Model submenu screen, press the **Right** key to view the submenu screen.

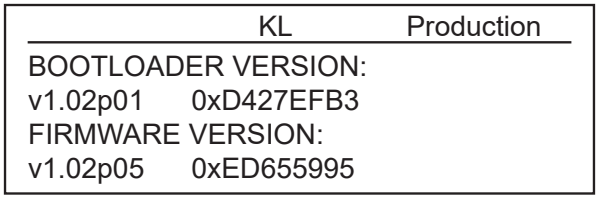


Figure 3-12 AcuDC-261 Firmware & Bootloader Version Info

3.3.3 Cable Loss

Home > Info > Cable Loss

Displays the cable loss resistance values of AcuDC-261.

To access the Cable Loss information from the Info screen, press the **Right** key from the Bootloader and Firmware Version sub screen.

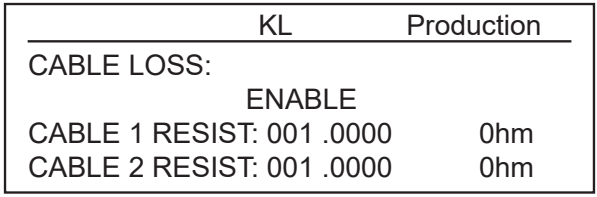


Figure 3-13 AcuDC-261 Cable Loss Info Screen

3.3.4 Public Key

Home > Info > Public Key

The public key shown on the meter is used to verify the digital signatures of transaction and transparency logs, ensuring that all billing-related data can be independently validated and has not been tampered with.

To access the Public Key information from the Info screen, press the **Right** key from the Cable Loss submenu screen to navigate to the Public Key submenu screen.

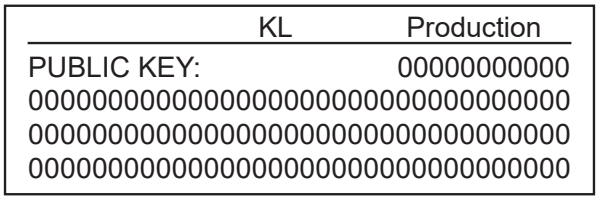


Figure 3-14 AcuDC-261 Public Key Info Screen

3.3.5 MAC Address

Home > Info > MAC Address

Shows the unique hardware identifier assigned to a network interface.

To access the MAC address details from the Info screen, press the **Right** key from Public Key submenu screen to navigate to the MAC Address submenu screen.

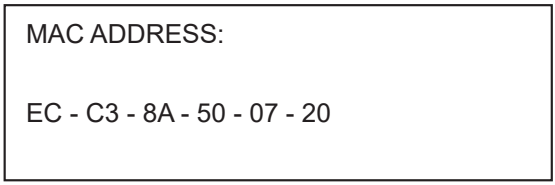


Figure 3-15 MAC Address Screen

3.4 Setting Screen

Home > Setting

The AcuDC-261 Meter **Setting** can be accessed from the Home screen. It includes communications and other configurable settings. For comprehensive information on meter settings, please refer to Chapter 5.

NOTE

If the seal status is enabled, certain settings and functions cannot be configured or modified.

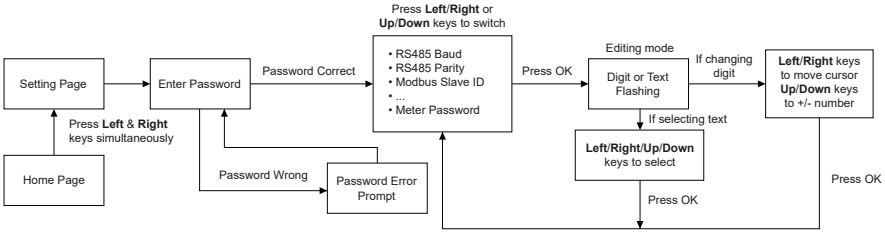


Figure 3-16a AcuDC-261 Setting Screen Sequence

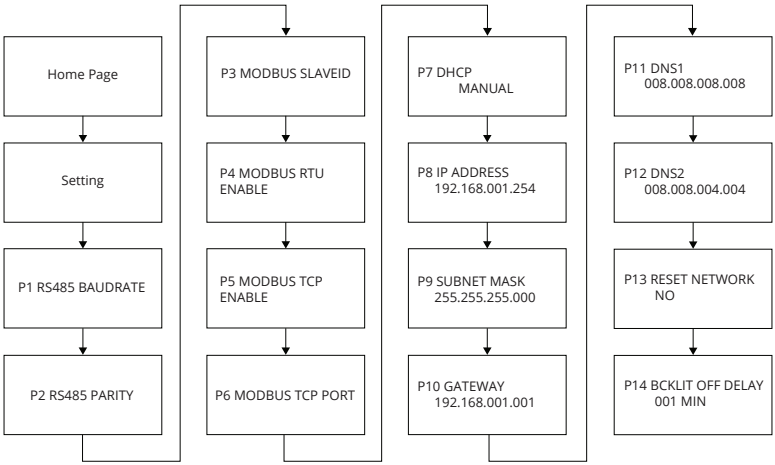


Figure 3-16b AcuDC-261 Network Setting Screen pages

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Navigate to the **Setting** on the Home screen and press **ENTER** to enter the Meter Settings screen.

From the Settings screen, the user can use the **Left** and **Right** keys to navigate through different submenu screens.

Before accessing the AcuDC-261 meter Settings screen, the user will be prompted to enter a four-digit password to prevent unauthorized access. Use the navigation keys to set each digit and press the **ENTER** key.

By default, the AcuDC-261 password is set to **0000.** The following figure shows the password input screen.

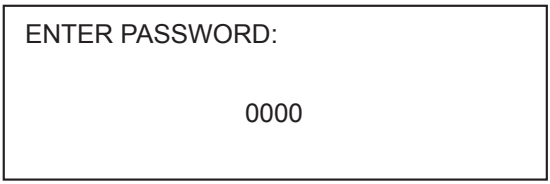


Figure 3-17 AcuDC-261 Password Submenu Screen

3.4.1 Baud Rate

Home > Setting > Baud Rate

The default baud rate for the AcuDC-261 is 19,200 bits per second (bps). Users can change the baud rate to one of the following options: 2400, 4800, 9600, 19200, 38400, 57600, 76800, or 115200.

To change the baud rate. Use the navigation keys to cycle through the baud rate options. Press the **ENTER** key to confirm selection.

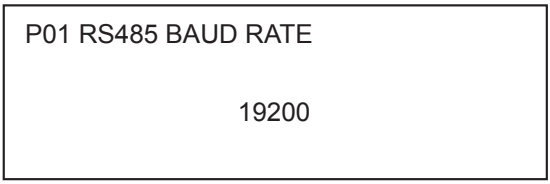


Figure 3-18 AcuDC-261 BPS Screen

3.4.2 RS485 Parity

Home > Setting > RS485 Parity

The default RS485 parity for the AcuDC-261 is set to None1(no parity, 1 stop bit). Users can change the parity type to one of the following options: None1, None2, Odd, or Even.

To change the RS485 parity, use the navigation keys to cycle through the parity options. Press the **ENTER** key to confirm selection.

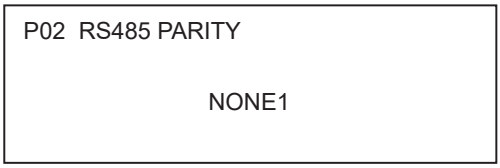


Figure 3-19 AcuDC-261 RS485 Parity Screen

3.4.3 Modbus Slave ID

Home > Setting > Modbus Slave ID

The Modbus Slave ID can be set within the range from 1 to 247. The default slave ID is 1.

Use the navigation keys to set each digit of the Modbus Slave ID. Press the **ENTER** key to confirm entry.

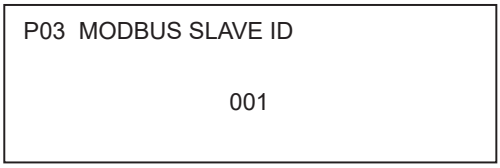


Figure 3-20 AcuDC-261 Modbus Slave ID Screen

3.4.4 Modbus RTU Enable Mode

Home > Setting > Modbus RTU Enable

Modbus RTU can be toggled on or off by using the navigation keys to switch between the **Enable** and **Disable** options. By default, the Modbus RTU is enabled.

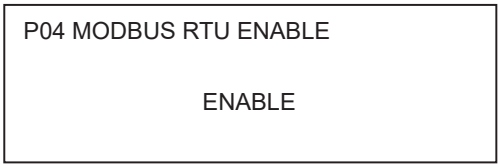


Figure 3-21 AcuDC-261 Modbus RTU Screen

3.4.5 Modbus TCP Enable Mode

Home > Setting > Modbus TCP Enable

Modbus TCP can be toggled on or off by using the navigation keys to switch between the **Enable** and **Disable** options. By default, the Modbus TCP is enabled.

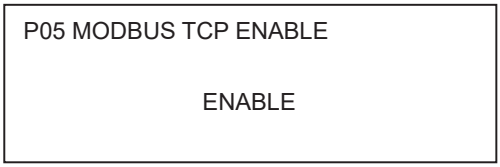


Figure 3-22 AcuDC-261 Modbus TCP Screen

3.4.6 Modbus TCP Port

Home > Setting > Modbus TCP Port

The Modbus TCP port number can be configured directly from the screen with a range from 1 to 65534. By default, the port number is 502.

To change the Modbus TCP port number, use the navigation keys to set each digit of the port number. Press the **ENTER** key to confirm entry.

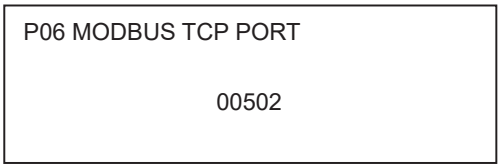


Figure 3-23 AcuDC-261 Modbus TCP Port Setting Screen

3.4.7 DHCP

Home > Setting > DHCP

To update the DHCP setting, the user can switch between the **Auto** and **Manual** options. Press the **ENTER** key to confirm selection. When set to **Auto,** the meter will automatically assign an IP address. By default, the DHCP is set to **Manual.**

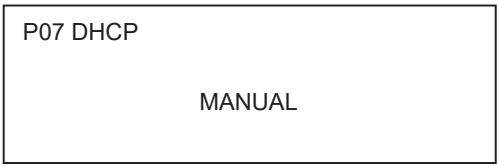


Figure 3-24 AcuDC-261 DHCP Setting Screen

3.4.8 IP Address

Home > Setting > IP Address

To update the IP address, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the IP address is set to 192.168.1.254.

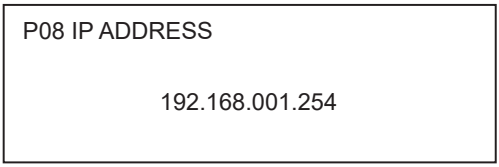


Figure 3-25 AcuDC-261 IP Address Configuration

3.4.9 Subnet Mask

Home > Setting > Subnet Mask

To update the Subnet Mask, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the Subnet Mask is set to 255.255.255.0.

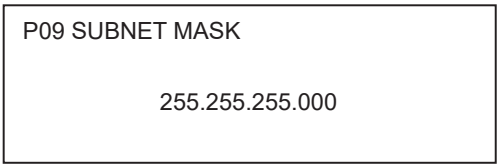


Figure 3-26 AcuDC-261 Subnet Mask Config

3.4.10 Gateway

Home > Setting > Gateway

To update the Gateway, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the gateway is set to 192.168.1.1.

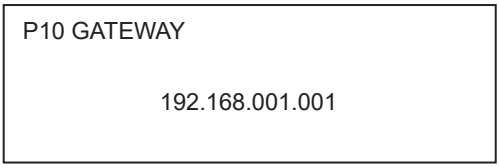


Figure 3-27 AcuDC-261 Gateway Configuration

3.4.11 Preferred DNS Server (DNS1)

Home > Setting > DNS 1

To update the DNS1, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the DNS1 is set to 8.8.8.8.

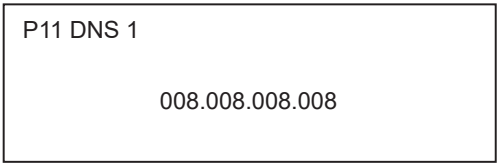


Figure 3-28 AcuDC-261 DNS 1 Address Configuration

3.4.12 Alternate DNS Server (DNS2)

Home > Setting > DNS 2

To update the DNS2, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the DNS2 is set to 8.8.4.4.

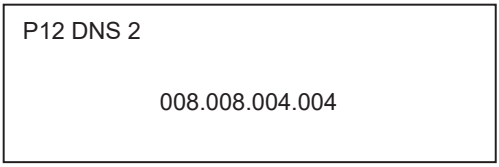


Figure 3-29 AcuDC-261 DNS 2 Address Configuration

3.4.13 Reset Network

Home > Setting > Reset Network

The reset network setting resets the AcuDC-261 network back to its default settings. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to reset the network. Press the **ENTER** key to confirm selection.

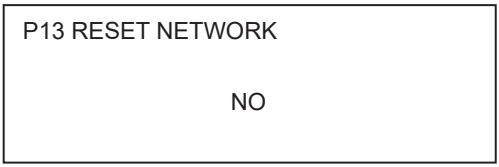


Figure 3-30 AcuDC-261 Reset Network Configuration

3.4.14 Backlit Off Delay

Home > Setting > Bcklit Off Delay

The Bcklit Off Delay **(Backlight Off Delay)** setting determines how long the display backlight remains on while inactive before the display is automatically dimmed.

To update the Backlit Off Delay, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The backlit off delay range can be set between 0 to 120 minutes. By default, the demand update period is set to 1-minute.

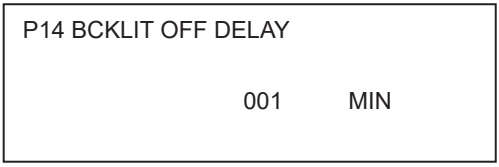


Figure 3-31 AcuDC-261 Blacklight OFF Delay

3.5 Fatal Error Screen

Upon every start-up, the meter performs an integrity verification of critical system components. The MCU calculates the CRC of the following items and compares them with the stored CRC values:

- Bootloader
- Firmware
- Product information
- ADC calibration values

- Measurement configurations
- Energy data

If any CRC mismatch is detected, the device enters a Fatal Error state. In this condition, the meter will display a FATAL ERROR message on the screen and report the fault through the communication interface. This state cannot be cleared or reset by the user. The device must be serviced or reprogrammed to restore normal operation..



Figure 3-32 Fatal Error Screen

Chapter 4: AcuDC-262 Meter Display & Parameter Settings

This chapter explains how to operate the AcuDC-262 meter for viewing real-time measurement data and configuring settings using the display screen and navigation keys. For more advanced configurations and explanation of each setting, refer to Chapter 5.

4.1 Display Panel and Navigation Keys

The front of the AcuDC-260 Series includes an LCD screen and five navigation keys. From left to right, these are the **Left** , **Right** , **Up** , **Down** , and **Enter** keys.



Figure 4-1 AcuDC-260 Series Front View

4.1.1 Using Navigation Keys

Navigating Between Screens

Use the **Left** or **Right** key to navigate to other submenu screens. To return to the Home screen press the **Left** and **Right** keys simultaneously.

How to Input Digits

Some settings require the user to input numbers on the screen. Use the **Left** and **Right** keys to move to the next adjacent digit. The **Up** and **Down** keys are used to change the selected digit. Press the **Enter** key to confirm the input.

The AcuDC-262 screen structure is illustrated in Figure 4-2.

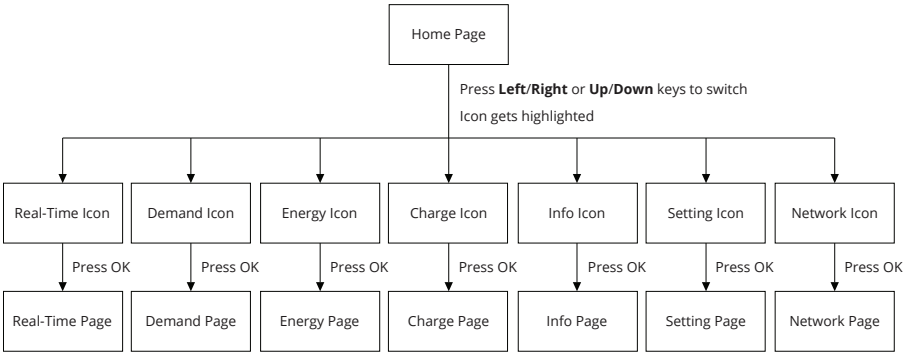


Figure 4-2 AcuDC-262 Display Screen Structure

4.1.2 Home Screen

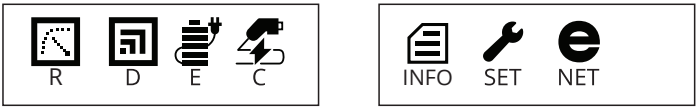


Figure 4-3 AcuDC-262 Home Screen

SN	Display	Description
1	R Real-Time	Use the **Left** or **Right** keys to select the **R** icon on the Home screen. Press the **Enter** key to navigate to the Real-Time screen. Real-Time screen has four submenu screens: • Voltage • Current • Power • Ripple Factor
2	D Demand	Use the **Left** or **Right** keys to select the **D** icon on the Home screen. Press the **Enter** key to navigate to the Demand Screen. Demand Screen has two submenu screens: • I Demand • P Demand

SN	Display	Description
3	 Energy	Use the **Left** or **Right** keys to select the **E** icon on the Home screen. Press the **Enter** key to navigate to the Energy screen. The Energy screen has six submenu screens: • E1-IMP & E1-EXP • E1-NET & E1-TOTAL • E2-IMP & E2-EXP • E2-NET & E2-TOTAL • ES-IMP & ES-EXP • ES-NET & ES-TOTAL
4	 Charge	Use the **Left** or **Right** keys to select the **C** icon on the Home screen. Press the **Enter** key to navigate to the Charge screen. The Charge screen has six submenu screens: • C1-IMP & C1-EXP • C1-NET & C1-TOTAL • C2-IMP & C2-EXP • C2-NET & C2-TOTAL • CS-IMP & CS-EXP • CS-NET & CS-TOTAL
5	 Info	Use the **Left** or **Right** keys to select the **INFO** icon on the Home screen. Press the **Enter** key to navigate to the Info screen. The Info screen has ten submenu screens: • Manufacturer • Model • Hardware Version & Bootloader Version • Firmware Version & Release Date • S/N • MAC Address • Time & Date • Run Time • Load Time • Seal Status

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SN	Display	Description
6	 SET Setting	Use the **Left** or **Right** keys to select the **SET** icon on the Home screen. Press the **Enter** key to navigate to the **Setting** screen. The **Setting** screen has 34 submenu screens: • P01 RS485 Baud Rate • P02 RS485 Parity • P03 Modbus Slave ID • P04 Modbus RTU Enable • P05 Modbus TCP Enable • P06 Modbus TCP Port • P07 PT1 • P08 PT2 • P09 CT11 • P10 CT12 • P11 CT21 • P12 CT22 • P13 Demand Method • P14 Demand Window • P15 Demand Update Period • P16 Pulse Parameter • P17 Pulse Type • P18 Energy Reading Type • P19 RT Reading Type • P20 Backlight Off Delay • P21 Clear Demand • P22 Clear Max/Min • P23 Clear Run Time • P24 Clear Energy • P25 Clear Charge • P26 Factory Reset • P27 Date & Time • P28 Clear Load Time • P29 Cable Loss Comp • P30 Cable 1 Resist • P31 Cable 2 Resist • P32 Pulse Constant • P33 Pulse Channel ID • P34 Meter Password NOTE Password verification is required to access this screen.

SN	Display	Description
7	NET Network	Use the **Left** or **Right** keys to select the **NET** icon on the Home screen. Press the **Enter** key to navigate to the Network screen. The Network screen has 7 submenu screens: • P01 DHCP • P02 IP Address • P03 Subnet Mask • P04 Gateway • P05 DNS 1 • P06 DNS 2 • P07 Reset Network NOTE Password verification is required to access this screen.

NOTE Pressing both the **Left** and **Right** keys simultaneously on any screen will return to the previous menu, while pressing the **ENTER** key will navigate to the selected screen.

NOTE The Seal 🔒 icon indicates that the meter is electronically sealed, and the following settings cannot be modified:

4.2 Real-Time Screen

Home > Real-Time

The AcuDC-262 screen features real-time readings, including voltage, current, power, and ripple factors for instantaneous insights into the system's performance. Real-time metering data can also be accessed through Acuview 2, for more information refer to Chapter 6.

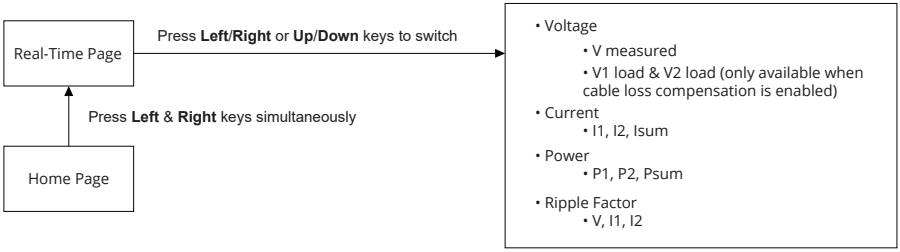


Figure 4-4 AcuDC-262 Real-Time Display Screen Structure

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Navigation Instructions

Use the navigation keys to select the Real-Time 

icon from the Home screen and press **Enter** to access the Real-Time screen.

4.2.1 Voltage

Home > Real-Time > Voltage

The voltage readings will be the first submenu screen when accessing the Real-Time section.

Use the **Left** or **Down** key to navigate to the next submenu screens; **Right** and **Up** key to the previous submenu screens.

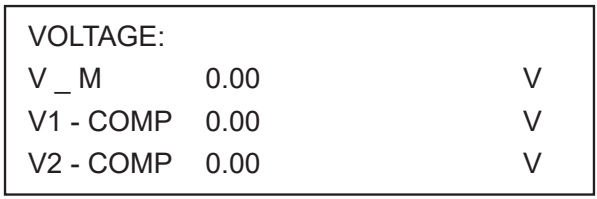


Figure 4-5 AcuDC-262 Real-Time Voltage Screen

The Voltage submenu screen displays various voltage readings such as measured voltage, which is the voltage level measured by the meter without considering the cable losses and compensated voltages which offset the voltage drop caused by the cable resistance.

Parameters	Description
V - M	Measured Voltage
V1 – COMP	Compensated Voltage 1
V2 - COMP	Compensated Voltage 2

4.2.2 Current

Home > Real-Time > Current

From the Voltage section, use the navigation **Left** or **Down** keys to access the **Current** submenu screen.

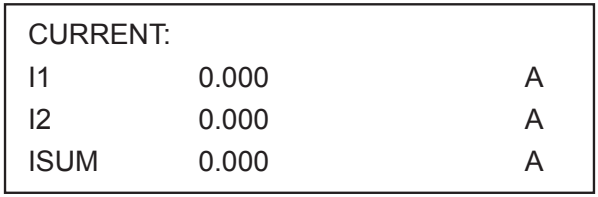


Figure 4-6 AcuDC-262 Current Screen

Parameters	Description
I1	Current 1
I2	Current 2
ISUM	Current Sum

4.2.3 Power

Home > Real-Time > Power

To access the power readings from the Current screen, press either the **Left** or **Down** keys to navigate to the **Power** submenu screen.

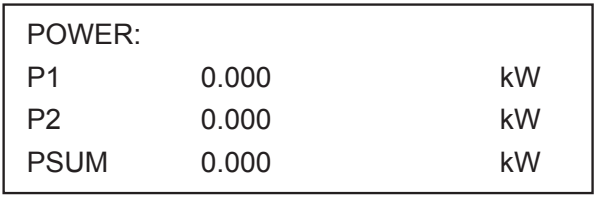


Figure 4-7 AcuDC-262 Power Screen

Parameters	Description
P1	Power 1
P2	Power 2
PSUM	Power Sum

4.2.4 Ripple Factor

Home > Real-Time > Ripple Factor

To access the ripple factor readings from the Current screen, press either the **Left** or **Down** keys to navigate to the Ripple Factor submenu screen.

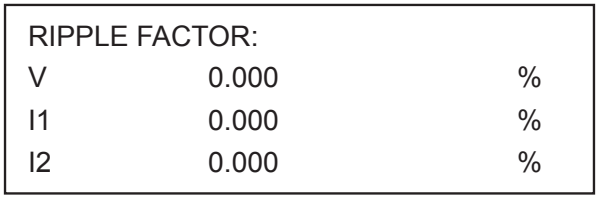


Figure 4-8 AcuDC-262 Ripple Factor Screen

Ripple factor measures how smooth the DC output is after rectification. Higher ripple factor indicates more AC components and less effective rectification, while lower ripple factor indicates smoother and more stable DC output.

Parameters	Description
V	Voltage Ripple Factor
I1	Current 1 Ripple Factor
I2	Current 2 Ripple Factor

4.3 Demand Screen

Home > Demand

The AcuDC-262 screen features demand readings of the system. It includes the current demand and power demand readings.

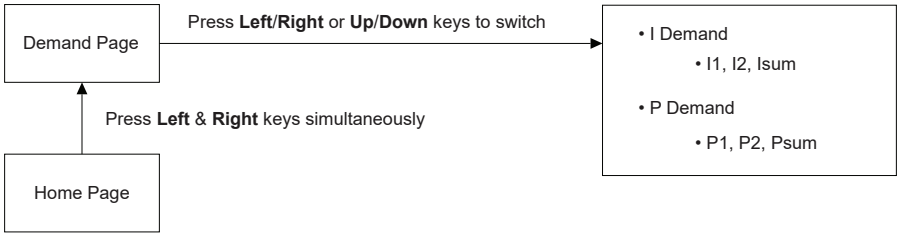


Figure 4-9 AcuDC-262 Demand Screen Sequence

Navigate to the  icon on the home screen and press **Enter** to access the Demand screen.

4.3.1 Current (I) Demand

Home > Demand > I Demand

To access the current (I) demand readings from the Demand screen, press either the **Left** or **Right** key to navigate to the I Demand submenu screen.

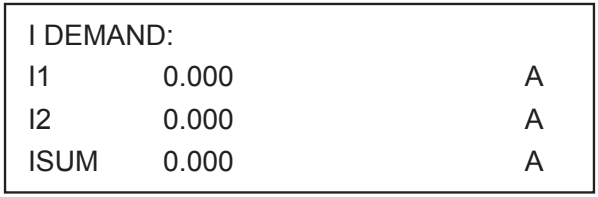


Figure 4-10 AcuDC-262 I Demand Screen

Parameters	Description
I1	Demand Current 1
I2	Demand Current 2
ISUM	Demand Current Sum

4.3.2 Power (P) Demand

Home > Demand > P Demand

To access the power (P) demand readings from the I Demand screen, press either the **Left** or **Right** key to navigate to the P Demand submenu screen.

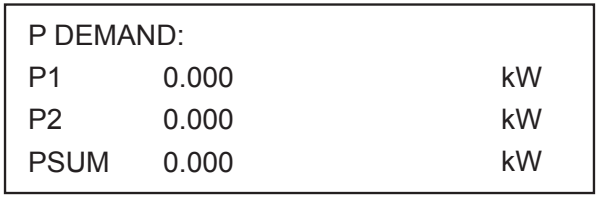


Figure 4-11 AcuDC-262 P Demand Screen

Parameters	Description
P1	Demand Power 1
P2	Demand Power 2
PSUM	Demand Power Sum

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4.4 Energy Screen

Home > Energy

The AcuDC-262 features Energy readings of the system, which can be accessed from the display screen. It includes imported/exported energy and the net/total energy readings.

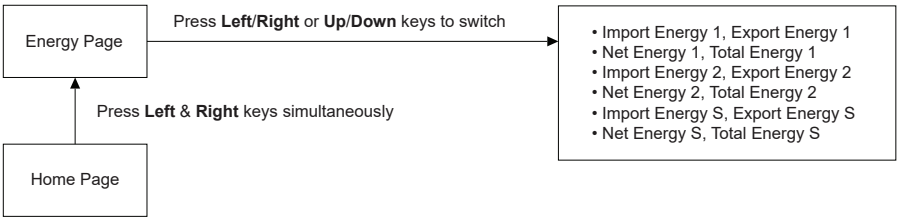


Figure 4-12 Energy Screen Sequence

Navigate to the  icon on the home screen and press **Enter** to access the Energy screen.

4.4.1 Energy Reading via Current Input 1(E1)

4.4.1.1 Import & Export Energy via Current Input 1 (E1-EXP & E1-IMP)

Home > Energy > Import & Export Energy 1

When **Enter** is pressed to access the Energy Screen, user can access the import energy and export energy readings via the current input channel 1.



Figure 4-13 AcuDC-262 Channel 1 Import & Export Energy Screen

AcuDC-262 measures import and export energy, where import energy refers to the energy consumed (i.e. power flowing into the facility from the grid), and export energy refers to the energy generated (i.e. power flowing from the facility back to the grid).

Parameters	Description
E1 – IMP	Import Energy 1
E1 – EXP	Export Energy 1

4.4.1.2 Net & Total Energy via Current Input 1 (E1-NET & E1-TOTAL)

Home > Energy > Net & Total Energy 1

To access the net energy and total energy readings via the current input channel 1 from the Energy screen, press either the **Left** or **Down** key from the E1-EXP & E1-IMP screen to navigate to the Net/Total Energy submenu screen.



Figure 4-14 AcuDc-262 Channel 1 Net & Total Energy Screen

Net energy is the difference between the energy imported and exported over a specific period, while total energy is the sum of imported and exported energy over a specific period.

Parameters	Description
E1 – NET	Net Energy 1
E1 – TOTAL	Total Energy 1

4.4.2 Energy Reading via Current Input 2 (E2)

4.4.2.1 Import & Export Energy via Current Input 2 (E2-EXP & E2-IMP)

Home > Energy > Import & Export Energy 2

To access the import energy and export energy readings via the current input channel 2, press either the **Left** or **Down** key from the E1-NET & E1-TOTAL screen to navigate to the E2 Import/ Export Energy submenu screen.



Figure 4-15 AcuDC-262 Channel 2 Import & Export Energy Screen

AcuDC-262 measures import and export energy, where import energy refers to the energy consumed, and export energy refers to the energy generated.

Parameters	Description
E2 – IMP	Import Energy 2
E2 – EXP	Export Energy 2

4.4.2.2 Net & Total Energy via Current Input 2 (E2-NET & E2-TOTAL)

Home > Energy > Net & Total Energy 2

To access the net energy and total energy readings via the current input channel 2, press either the **Left** or **Down** key from the E2-EXP & E2-IMP screen to navigate to the Net/Total Energy submenu screen.



Figure 4-16 AcuDC-262 Channel 2 Net & Total Energy Screen

Net energy is the difference between the energy imported and exported over a specific period, while total energy is the sum of imported and exported energy over a specific period.

Parameters	Description
E2 – NET	Net Energy 2
E2 – TOTAL	Total Energy 2

4.4.3 System Energy Reading

4.4.3.1 Import & Export Energy (ES-IMP & ES-EXP)

Home > Energy > Import & Export Energy Sum

To access the system's import energy and export energy readings from the Energy screen, press either the **Left** or **Down** key from the E2-NET & E2-TOTAL screen to navigate to the ES Import/ Export Energy submenu screen.

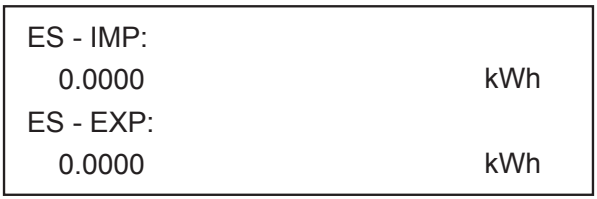


Figure 4-17 AcuDC-262 Import System Energy Screen

AcuDC-262 measures system's import and export energy, where import energy refers to the energy consumed, and export energy refers to the energy generated.

Parameters	Description
ES – IMP	Import Energy Sum
ES – EXP	Export Energy Sum

4.4.3.2 Net & Total Energy (ES-NET & ES-TOTAL)

Home > Energy > Net & Total Energy Sum

To access the system net energy and total energy readings, press either the **Left** or **Down** key from the ES-IMP & ES-EXP screen to navigate to the Net/Total Energy submenu screen.



Figure 4-18 AcuDC-262 Net System Energy Screen

Net energy is the difference between the energy imported and exported over a specific period, while total energy is the sum of imported and exported energy over a specific period.

Parameters	Description
ES – NET	Net Energy Sum
ES – TOTAL	Total Energy Sum

4.5 Electrical Charge Screen

Home > Charge

The AcuDC-262 features electrical charge readings of the system. It includes imported/exported electrical charge and the net/total electrical charge readings. For comprehensive information on Charge parameters, please refer to Chapter 4.4.

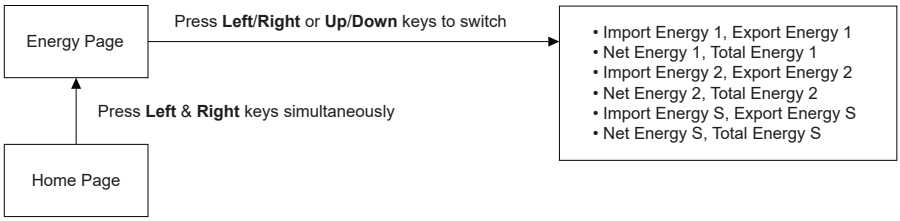


Figure 4-19 Charge Screen Sequence

Navigate to the icon on the home screen and press **Enter** to enter the Electrical Charge screen.

4.5.1 Charge Readings via Current Input 1 (C1)

4.5.1.1 Import & Export Charge via Current Input 1 (C1-IMP & C1-EXP)

Home > Charge > Import & Export Charge 1

To access the import/export charge readings from the Charge screen, press either the **Left** or **Right** key to navigate to the C1 Import/Export Charge submenu screen.



Figure 4-20 AcuDC-262 Channel 1 Import & Export Charge Screen

Import charge refers to the electric charges while power is flowing to the facility from the grid, and export charge refers to the electric charges while power is flowing out from the facility back to the grid.

Parameters	Description
C1 – IMP	Import Charge 1
C1 – EXP	Export Charge 1

4.5.1.2 Net & Total Charge via Current Input 1 (C1-NET & C1-TOTAL)

Home > Charge > Net & Total Charge 1

To access the net charge and total charge readings from the Energy screen, press either the **Left** or **Down** key from the C1-IMP & C1-EXP screen to navigate to the C1 Net/Total Charge screen.



Figure 4-21 AcuDC-262 Channel 1 Net/Total Charge Screen

Net charge is the difference between the electric charges imported and exported over a specific period, while total charge is the sum of imported and exported electric charges over a specific period.

Parameters	Description
C1 – NET	Net Charge 1
C1 – TOTAL	Total Charge 1

4.5.2 Charge Readings via Current Input 2 (C2)

Home > Charge > Import & Export Charge 2

To access the import/export charge readings from the Charge screen, press either the **Left** or **Down** key from the C1-NET & C1-TOTAL screen to navigate to the C2 Import/Export Charge screen.



Figure 4-22 AcuDC-262 Channel 2 Import & Export Charge Screen

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Import charge refers to the electric charges while power is flowing to the facility from the grid, and export charge refers to the electric charges while power is flowing out from the facility back to the grid.

Parameters	Description
C2 – IMP	Import Charge 2
C2 – EXP	Export Charge 2

4.5.2.2 Net & Total Charge via Current Input 2 (C2-NET & C2-TOTAL)

Home > Charge > Net & Total Charge 2

To access the net charge and total charge readings from the Energy screen, press either the **Left** or **Down** key from the C2-IMP & C2-EXP screen to navigate to the C2 Net/Total Charge screen.



Figure 4-23 AcuDC-262 Channel 2 Net & Total Charge Screen

Net charge is the difference between the electric charges imported and exported over a specific period, while total charge is the sum of imported and exported electric charges over a specific period.

Parameters	Description
C2 – NET	Net Charge 2
C2 – TOTAL	Total Charge 2

4.5.3 System Charge

4.5.3.1 System Import & Export Charge (CS-IMP & CS-EXP)

Home > Charge > Import & Export Charge Sum

To access the system import/export charge readings from the Charge screen, press either the **Left** or **Down** key from the C2-NET & C2-TOTAL screen to navigate to the CS Import/Export Charge screen.



Figure 4-24 AcuDC-262 Import System Charge Screen

Import charge refers to the electric charges while power is flowing to the facility from the grid, and export charge refers to the electric charges while power is flowing out from the facility back to the grid.

Parameters	Description
CS – IMP	Import Charge Sum
CS – EXP	Export Charge Sum

4.5.3.2 System Net & Total Charge (CS-NET & CS-TOTAL)

Home > Charge > Net & Total Charge Sum

To access the net energy and total charge readings from the Charge screen, press either the **Left** or **Down** key from the CS-IMP & CS-EXP screen to navigate to the CS Net/Total Charge screen.

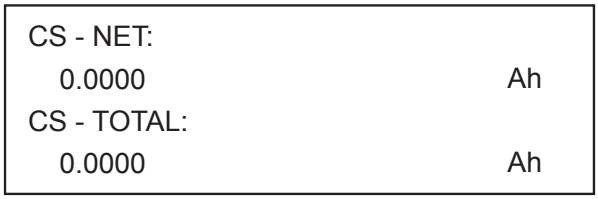


Figure 4-25 AcuDC-262 Net System Charge Screen

Net charge is the difference between the electric charges imported and exported over a specific period, while total charge is the sum of imported and exported electric charges over a specific period.

Parameters	Description
CS – NET	Net Charge Sum
CS – TOTAL	Total Charge Sum

4.6 Info Screen

Home > Info

The AcuDC-262 Info submenu screen shows device details and can be accessed directly from the display screen. It includes details about the manufacturer, model, hardware version, firmware release and other info.

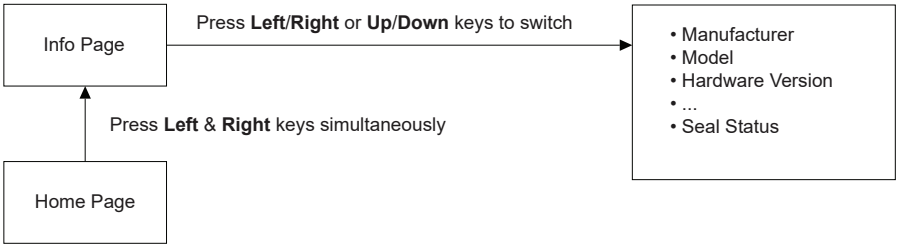


Figure 4-26 AcuDC-262 Info Screen Sequence

Navigate to the INFO icon on the Home screen and press **ENTER** to enter the Information screen.

4.6.1 Manufacturer

Home > Info > Manufacturer

To access the manufacturer information from the Info screen, press **ENTER** key on the **INFO** icon to view the submenu screen.

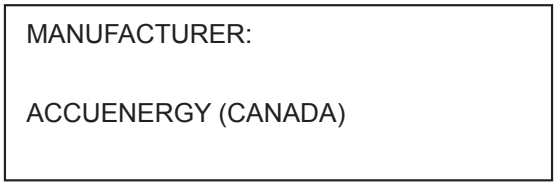


Figure 4-27 AcuDC-262 Manufacturer Info Screen

4.6.2 Model

Home > Info > Model

To access the AcuDC-262 model details from the Info screen, press either the **Left** or **Down** key to navigate to the Model submenu screen. To return to the Home screen press the **Left** and **Right** keys simultaneously.

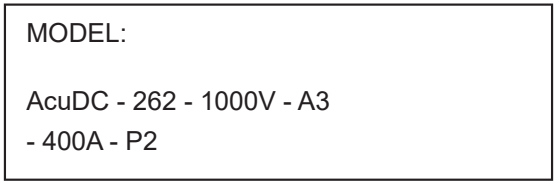


Figure 4-28 AcuDC-262 Model Info Screen

4.6.3 Hardware Version

Home > Info > Hardware Version

To access the hardware and bootloader version details from the Info screen, press either the **Left** or **Down** key to navigate to the Hardware Version submenu screen.

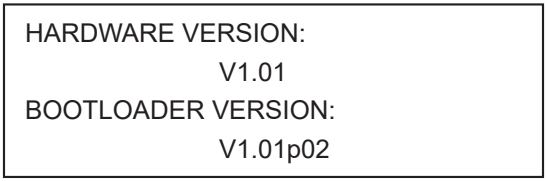


Figure 4-29 AcuDC-262 Hardware & Bootloader Version Info

4.6.4 Firmware Version

Home > Info > Firmware Version

To access the firmware version details from the Info screen, press either the **Left** or **Down** key to navigate to the Firmware Version submenu screen.

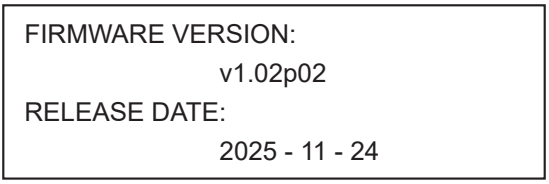


Figure 4-30 AcuDC-262 Firmware Info Screen

4.6.5 Serial Number

Home > Info > Serial Number

Displays the serial number (S/N) of the AcuDC-262.

To access the serial number information from the Info screen, press either the **Left** or **Down** key to navigate to the S/N submenu screen.

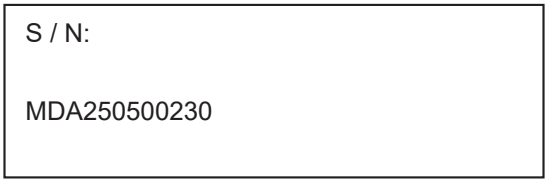


Figure 4-31 AcuDC-262 S/N Screen

4.6.6 MAC Address

Home > Info > MAC Address

Shows the unique hardware identifier assigned to a network interface.

To access the MAC address details from the Info screen, press either the **Left** or **Down** key to navigate to the MAC Address submenu screen.

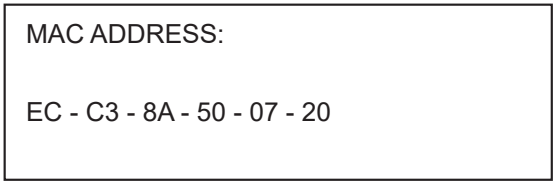


Figure 4-32 AcuDC-262 MAC Address Screen

4.6.7 Date & Time

Home > Info > Date & Time

Displays the date and time for the AcuDC-262.

To access the date and time information from the Info screen, press either the **Left** or **Down** key to navigate to the Date & Time submenu screen.

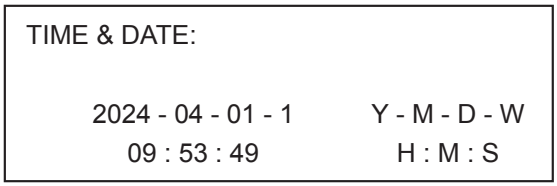


Figure 4-33 AcuDC-262 Time & Date Info Screen

4.6.8 Run Time

Home > Info > Run Time

The Run Time screen shows the total amount of time AcuDC-262 has been actively operating in hours.

To access the run time readings from the Info screen, press either the **Left** or **Down** key to navigate to the Run Time submenu screen.

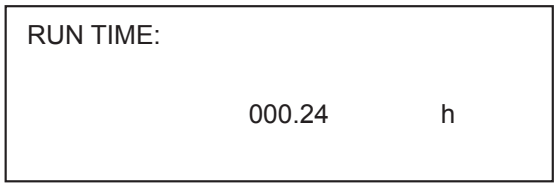


Figure 4-34 AcuDC-262 Run Time Screen

4.6.9 Load Time

Home > Info > Load Time

The Load Time screen shows the cumulative time energy has been supplied to the load.

To access the load time readings from the Info screen, press either the **Left** or **Down** key to navigate to the Load Time submenu screen.

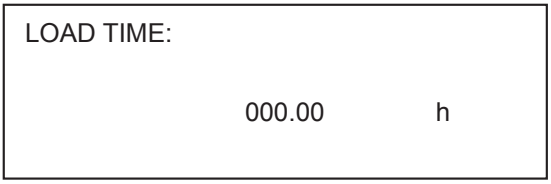


Figure 4-35 AcuDC-262 Load Time Screen

4.6.10 Seal Status

Home > Info > Seal Status

The AcuDC-262 uses an electronic metrology seal to digitally secure metering parameters from unauthorized changes. It prevents tampering of the meter settings or readings. The seal function can be configured by writing to the Modbus registers, or using the physical sealing switch. The register address for the seal function can be found later in the manual in Chapter 7.

The Seal Status screen indicates if the seal is enabled or disabled.

To access the seal status from the Info screen, press either the **Left** or **Down** key to navigate to the Seal Status submenu screen.

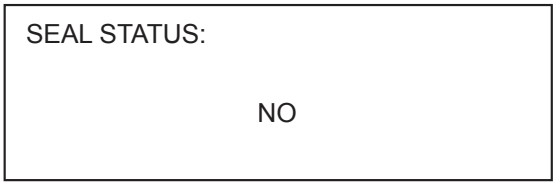


Figure 4-36 AcuDC-262 Seal Status Screen

The AcuDC-262 display screen with a locked icon status indicates the setting is sealed, while an unlock icon status indicates the setting is unsealed. When the AcuDC-262 is sealed, certain parameter and function settings will be blocked. These parameters will still be accessible, however, they cannot be changed or modified.

NOTE

By default, the AcuDC-262 model is not sealed.

Table 4-1 AcuDC-262 System Parameters Settings blocked in Sealed Status

Parameters	Screen Page	Meter Display	Modbus Communication
RS485 Baud Rate	P01		
RS485 Parity	P02		
Modbus Slave ID	P03		
Modbus RTU Enable	P04		
Modbus TCP Enable	P05		
Modbus TCP Port	P06		
PT 1	P07	√	√
PT 2	P08	√	√

Parameters	Screen Page	Meter Display	Modbus Communication
CT 11	P09	√	√
CT 12	P10	√	√
CT 21	P11	√	√
CT 22	P12	√	√
Demand Method	P13	√	√
Demand Window	P14	√	√
Demand Update Period	P15	√	√
Energy Pulse Parameter	P16	√	√
Energy Pulse Type	P17	√	√
Energy Reading type	P18	√	√
Real Time Reading type	P19	√	√
Backlit Off Delay	P20		
Clear Demand Memory	P21	√	√
Clear Max/Min	P22	√	√
Clear Run Time	P23	√	√
Clear Energy	P24	√	√
Clear Charge	P25	√	√
Factory Reset	P26	√	√
Date & Time	P27		
Clear Load Time	P28	√	√
Cable Loss Comp	P29		
Cable 1 Resist	P30		
Cable 2 Resist	P31		
Pulse Constant	P32	√	√
Pulse Channel ID	P33	√	√
Meter Password	P34		

4.7 Meter Setting Screen

Home > Setting

The AcuDC-262 meter **Settings** can be accessed from the Home screen. It includes communications, demand, energy, cable loss, clear, reset, and other configurable settings. For comprehensive information on meter settings, please refer to Chapter 5.

NOTE

If the seal status is enabled, certain settings and functions cannot be configured or modified.

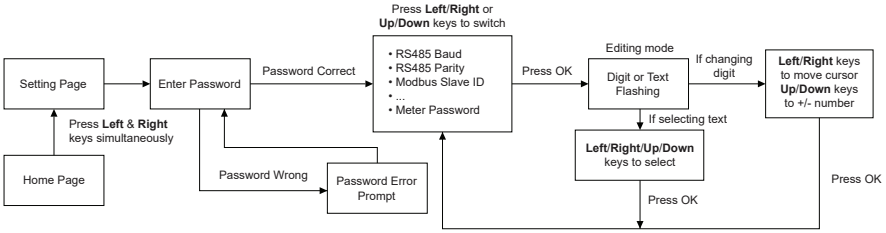


Figure 4-37 AcuDc-262 Setting Screen Sequence

Navigate to the Settings SET icon on the Home screen and press **ENTER** to enter the Meter Settings screen.

From the Settings screen, the user can use the **Left** and **Right** keys to navigate through different submenu screens.

Before accessing the AcuDC-262 meter Settings screen, the user will be prompted to enter a four-digit password to prevent unauthorized access. Use the navigation keys to set each digit and press the **ENTER** key.

By default, the AcuDC-262 password is set to **0000.** The following figure shows the password input screen.

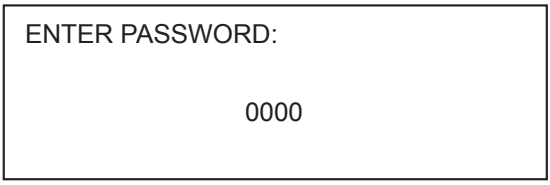


Figure 4-38 AcuDC-262 Password Screen

4.7.1 RS485 Communication Setting

4.7.1.1 Baud Rate

Home > Setting > Baud Rate

The default baud rate for the AcuDC-262 is 19,200 bits per second. Users can change the baud rate (bps) to one of the following options: 2,400, 4800, 9,600, 19,200, 38,400, 57,600, 76,800, or 115,200.

To change the baud rate. Use the navigation keys to cycle through the baud rate options. Press the **ENTER** key to confirm selection.

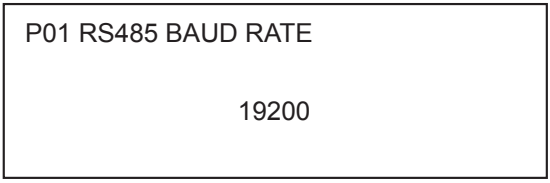


Figure 4-39 AcuDC-262 BPS Screen

4.7.1.2 RS485 Parity

Home > Setting > RS485 Parity

The default RS485 parity for the AcuDC-262 is set to None1. Users can change the parity type to one of the following options: None1, None2, Odd, or Even.

To change the RS485 parity, use the navigation keys to cycle through the parity options. Press the **ENTER** key to confirm selection.

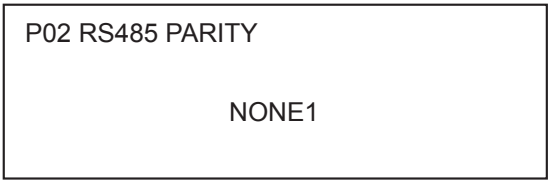


Figure 4-40 AcuDC-262 RS485 Parity Screen

4.7.1.3 Modbus Slave ID

Home > Setting > Modbus Slave ID

The Modbus Slave ID can be set within the range from 1 to 247. The default slave ID is 1.

Use the navigation keys to set each digit of the Modbus Slave ID. Press the ENTER key to confirm entry.

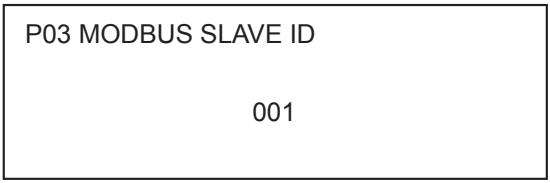


Figure 4-41 AcuDC-262 Modbus Slave ID Screen

4.7.1.4 Modbus RTU Enable Mode

Home > Setting > Modbus RTU Enable

Modbus RTU can be toggled on or off by using the navigation keys to switch between the **Enable** and **Disable** options. By default, the Modbus RTU is enabled.

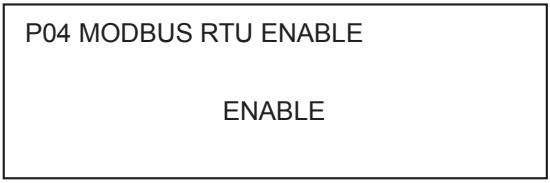


Figure 4-42 AcuDC-262 Modbus RTU Screen

4.7.1.5 Modbus TCP Enable Mode

Home > Setting > Modbus TCP Enable

Modbus TCP can be toggled on or off by using the navigation keys to switch between the **Enable** and **Disable** options. By default, the Modbus TCP is enabled.

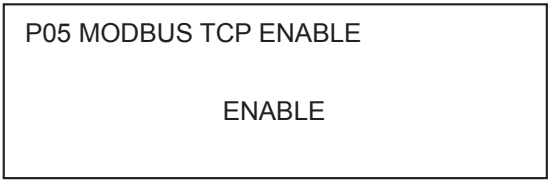


Figure 4-43 AcuDC-262 Modbus TCP Screen

4.7.1.6 Modbus TCP Port

Home > Setting > Modbus TCP Port

The Modbus TCP port number can be configured directly from the screen with a range from 1 to 65534. By default, the port number is 502.

To change the Modbus TCP port number, use the navigation keys to set each digit of the port number. Press the **ENTER** key to confirm entry.

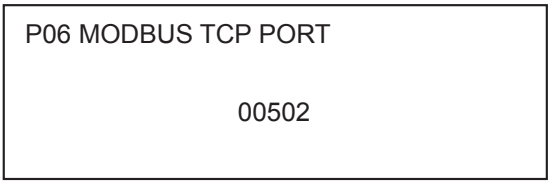


Figure 4-44 AcuDC-262 Modbus TCP Port Setting Screen

4.7.2 Demand Setting

NOTE Only supported on the AcuDC-262

4.7.2.1 Demand Method

Home > Setting > Demand Method

Demand Method can be toggled between options by using the navigation keys to switch between **SLIDING** and **FIXED.** By default, the Demand Method is **SLIDING.**

Sliding window and fixed window are two different ways to calculate demand. The sliding window method requires two parameters, the demand window time and the demand update period. For example, if the demand window time is set to 15 min and the demand update period is set to 1 min, the meter will calculate the average demand for the past 15 min, and update the demand value every 1 min.

NOTE The demand update period must be set to less than or equal to the demand window time.

The fixed window method only requires the demand update time. The meter divides the total time into fixed, non-overlapping intervals based on the demand update time, and average demand will be calculated within those intervals independently.

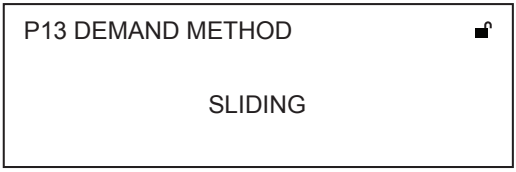


Figure 4-45 AcuDC-262 Demand Method Setting

4.7.2.2 Demand Window Time

Home > Setting > Demand Window Time

To update the Demand Window Time, use the navigation keys to set each digit. Press **ENTER** to confirm the input. The demand window time range can be set between 1 to 30 minutes. By default, the demand window time is set to 15 minutes.

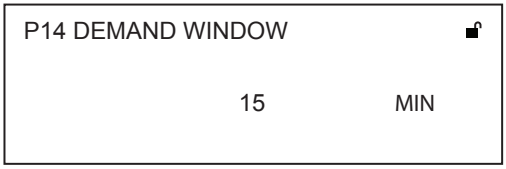


Figure 4-46 AcuDC-262 Demand Window Time Method

4.7.2.3 Demand Update Period

Home > Setting > Demand Update Period

To set the Demand Update Period, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The demand update period can be set between 1 to 30 minutes. By default, the demand update period is set to 1-minute.

NOTE Updating the demand update period will have no effect when demand method is set to **Fixed.**

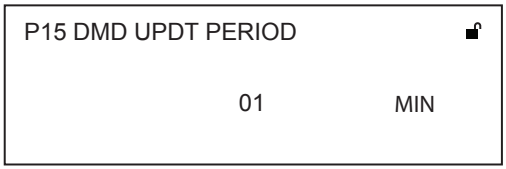


Figure 4-47 AcuDC-262 Demand Update Period Setting

4.7.3 Energy Setting

4.7.3.1 Energy Pulse Parameter

Home > Setting > Pulse Parameter

AcuDC-262 can emit pulses according to **Energy** or **Charge.** By default, the energy pulse is set to **None.**

To update the Energy Pulse Parameter, use the navigation keys to cycle through the energy pulse options. Press the **ENTER** key to confirm selection.

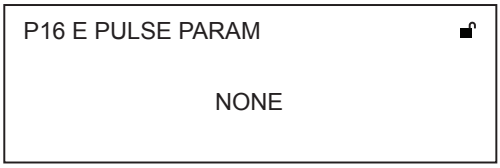


Figure 4-48 AcuDC-262 Energy Pulse Parameter Screen

4.7.3.2 Energy Pulse Type

Home > Setting > Energy Pulse Type

To update the Energy Pulse Type, use the navigation keys to cycle through **IMPORT, EXPORT, NET,** and **TOTAL.** Press the **ENTER** key to confirm selection.

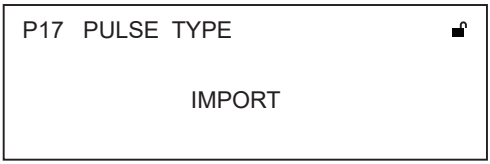


Figure 4-49 AcuDC-262 Energy Pulse Type Screen

4.7.3.3 Energy Pulse Constant

Home > Setting > Energy Pulse Constant

The Energy Pulse Constant screen allows the user to configure how many pulses will be sent per kWh of energy consumed.

To update the Energy Pulse Constant, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The energy pulse constant range can be set between 0.0001 to 5000.0000 imp/kWh_Ah. By default, the pulse constant is set to 5000.0000 imp/kWh Ah.

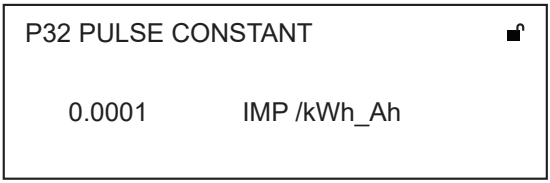


Figure 4-50 AcuDC-262 Energy Pulse Constant Setting

4.7.3.4 Energy Pulse Channel ID

Home > Setting > Energy Pulse Channel ID

To update the Energy Pulse Channel ID, use the navigation keys to cycle through CH1, CH2, and SUM options. Press the **ENTER** key to confirm the input.

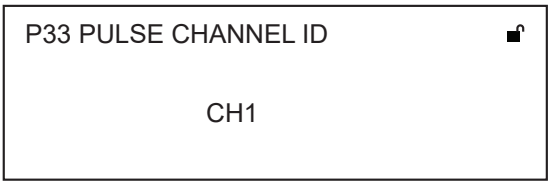


Figure 4-51 AcuDC-262 Energy Pulse Channel ID Screen

4.7.3.5 Energy Reading Type

Home > Setting > Energy Reading Type

To update the Energy Reading Type, use the navigation keys to cycle through PRIMARY and SECONDARY options. Press the **ENTER** key to confirm the input.

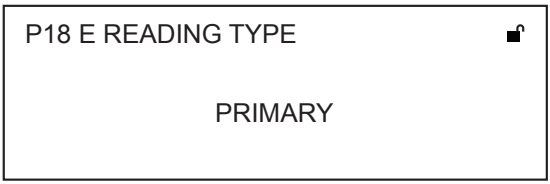


Figure 4-52 AcuDC-262 Energy Reading Type Screen

4.7.4 Real-Time Reading

Home > Setting > Real-Time Reading Type

To update the Energy Reading Type, use the navigation keys to cycle through PRIMARY and SECONDARY options. Press the **ENTER** key to confirm the input. By default, reading type is set to primary.

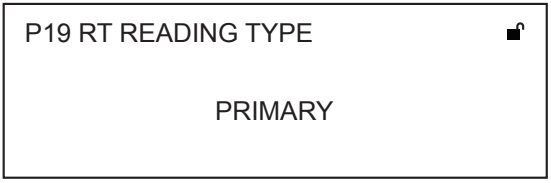


Figure 4-53 AcuDC-262 Real-Time Reading Type Screen

4.7.4.1 Backlight Off Delay

Home > Setting > Backlit Off Delay

The **Backlight Off Delay** setting determines how long the display backlight remains on while inactive before the display is automatically dimmed.

To update the Backlit Off Delay, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The backlit off delay range can be set between 1 to 120-minutes. By default, the demand update period is set to 1-minute.

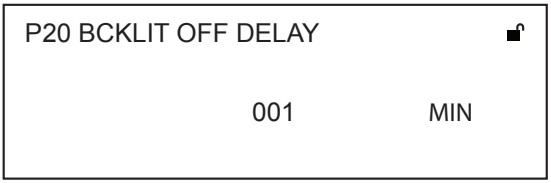


Figure 4-54 AcuDC-262 Blacklight OFF Delay Screen

4.7.5 Clear and Reset Function

4.7.5.1 Clear Demand

Home > Setting > Clear Demand

The Clear Demand setting allows the user to remove all demand data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all demand data. Press the **ENTER** key to confirm selection.

ALERT

All demand data will be permanently removed from the AcuDC-262 DC meter.

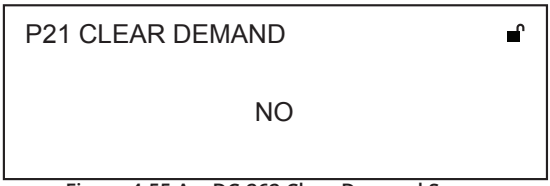


Figure 4-55 AcuDC-262 Clear Demand Screen

4.7.5.2 Clear Max/Min

Home > Setting > Clear Max/Min

The Clear Max/Min setting allows the user to remove all maximum and minimum data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all max/min data. Press the **ENTER** key to confirm selection.

ALERT

All maximum and minimum data will be permanently removed from the AcuDC-262 DC meter.

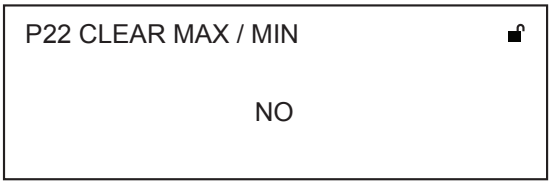


Figure 4-56 AcuDC-262 Clear Max/Min Screen

4.7.5.3 Clear Runtime

Home > Setting > Clear Runtime

The Clear Runtime setting allows the user to remove all runtime data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all run time data. Press the **ENTER** key to confirm selection.

ALERT

All run time data will be permanently removed from the AcuDC-262 DC meter.

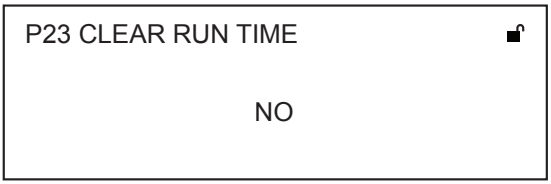


Figure 4-57 AcuDC-262 Clear Run Time Screen

4.7.5.4 Clear Energy

Home > Setting > Clear Energy

The Clear Energy setting allows the user to remove all energy data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all energy data. Press the **ENTER** key to confirm selection.

ALERT

All energy data will be permanently removed from the AcuDC-262 DC meter.

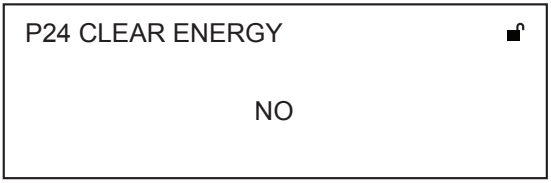


Figure 4-58 AcuDC-262 Clear Energy Screen

4.7.5.5 Clear Electrical Charge

Home > Setting > Clear Charge

The Clear Electrical Charge setting allows the user to remove all charge data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all charge data. Press the **ENTER** key to confirm selection.

ALERT

All electrical charge data will be permanently removed from the AcuDC-262 DC meter.

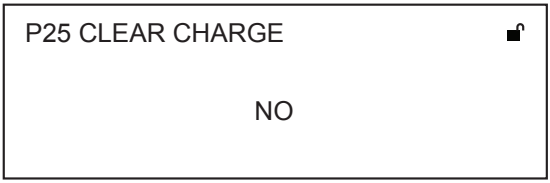


Figure 4-59 AcuDC-262 Clear Charge Screen

4.7.5.6 Factory Reset

Home > Setting > Factory Reset

The Factory Reset setting allows the user to reset the AcuDC-262 DC meter to its factory default settings. Use the navigation keys to switch between the **YES** and **NO** options. Select **Yes** to factory reset the AcuDC-262 DC meter. Press the **ENTER** key to confirm selection.

ALERT

All custom settings will be reset to its factory default, and all stored data will be permanently removed from the AcuDC-262 DC meter.

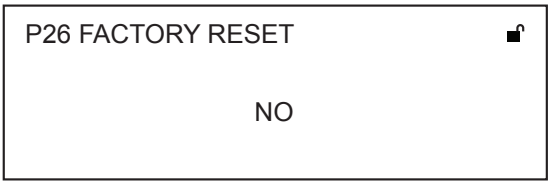


Figure 4-60 AcuDC-262 Factory Reset Screen

4.7.5.7 Date & Time

Home > Setting > Date & Time

To update the Meter Data & Time, use the navigation keys to set each date and time digit. Press the **ENTER** key to confirm the entry.

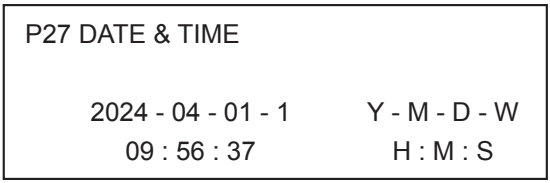


Figure 4-61 AcuDC-262 Time Date Config Setting

4.7.5.8 Clear Load Time

Home > Setting > Clear Load Time

The Clear Load Time setting allows the user to remove all load time data from the AcuDC-262 DC meter. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to delete all load time data. Press the **ENTER** key to confirm selection.

ALERT

All load time data will be permanently removed from the AcuDC-262 DC meter.

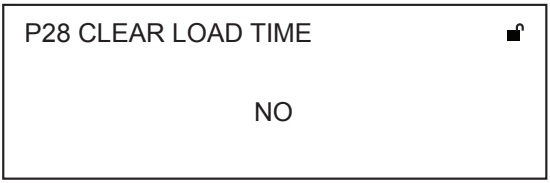


Figure 4-62 AcuDC-262 Clear Load Time Screen

4.7.6 Cable Loss Settings

4.7.6.1 Cable Loss Compensation

Home > Setting > Cable Loss Compensation

Cable resistance can lead to inaccuracies in energy measurements, as a portion of the energy will be dissipated as heat. For billing applications such as EV charging stations, it is important to ensure the customer is only billed for the amount that is delivered. The AcuDC-262 compensates for cable losses using its resistance, ensuring accurate and reliable measurements.

Cable loss compensation can be toggled between options by using the navigation keys to switch between **ENABLE** and **DISABLE.** By default, the Cable Loss Compensation is **ENABLE.**

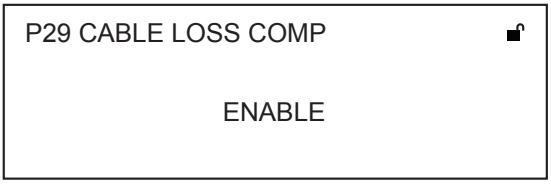


Figure 4-63 AcuDC-262 Cable Loss Configuration Screen

4.7.6.2 Cable 1 Resistance

Home > Setting > Cable 1 Resistance

To update the Cable 1 Resistance, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The cable 1 resistance can be set within the range of 0 to 999.9999 Ω, with a default value of 0 Ω.

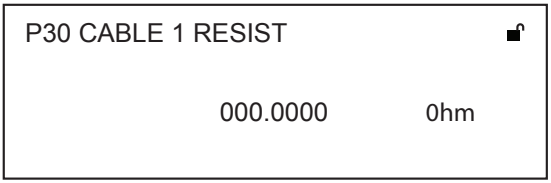


Figure 4-64 AcuDC-262 Cable 1 Resist Setting Screen

4.7.6.3 Cable 2 Resistance

Home > Setting > Cable 2 Resistance

To update the Cable 2 Resistance, use the navigation keys to set each digit. Press the **ENTER** key to confirm the input. The cable 2 resistance can be set within the range of 0 to 999.9999 Ω, with a default value of 0 Ω.

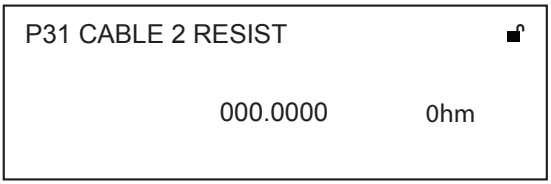


Figure 4-65 AcuDC-262 Cable 2 Resist Setting

4.7.7 Meter Password

Home > Setting > Meter Password

The Meter Password setting allows the user to update the AcuDC-262 password. To update the password, use the navigation keys to set each digit. Press the ENTER key to confirm the input. By default, the password is set to 0000.

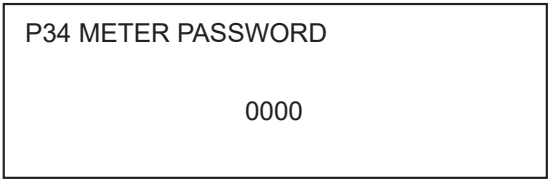


Figure 4-66 AcuDC-262 Password Configuration

4.8 Network Setting Screen

The AcuDC-262 network settings can be configured from the Home screen. Navigate to the NET icon on the Home screen and press **ENTER** to access the Network Settings screen. From the Settings screen, the user can use the **Left** and **Right** keys to navigate through different submenu screens.

Before accessing the AcuDC-262 meter Settings screen, the user will be prompted to enter a four-digit password to prevent unauthorized access. Use the navigation keys to set each digit and press the **ENTER** key.

By default, the AcuDC-262 password is set to **0000.**

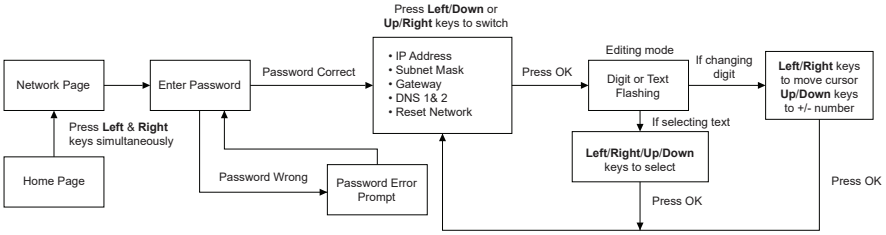


Figure 4-67 AcuDC-262 Network Setting Screen Sequence

4.8.1 DHCP

Home > Network > DHCP

To update the DHCP setting, the user can press the **Left** and **Right** key to switch between the **Auto** and **Manual** options. Press the **ENTER** key to confirm selection. When set to Auto, the meter will automatically assign an IP address. By default, the DHCP is set to **Manual.**

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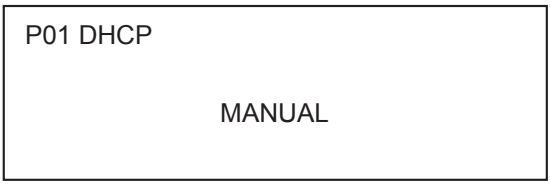


Figure 4-68 AcuDC-262 DHCP Setting Screen

4.8.2 IP Address

Home > Network > IP Address

To update the IP address, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the IP address is set to 192.168.1.254.

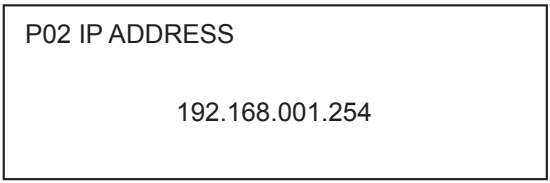


Figure 4-69 AcuDC-262 IP Address Configuration

4.8.3 Subnet Mask

Home > Network > Subnet Mask

To update the Subnet Mask, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the Subnet Mask is set to 255.255.255.0.

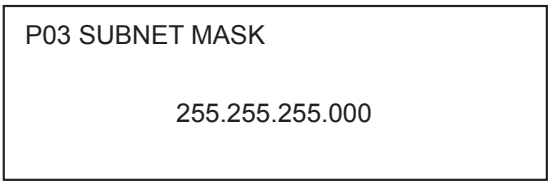


Figure 4-70 AcuDC-262 Subnet Mask Config

4.8.4 Gateway

Home > Network > Gateway

To update the Gateway, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the gateway is set to 192.168.1.1.

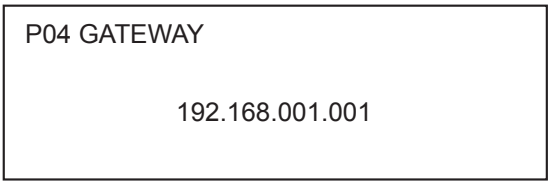


Figure 4-71 AcuDC-262 Gateway Configuration

4.8.5 Preferred DNS Server (DNS1)

Home > Network > DNS 1

To update the DNS, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the DNS1 is set to 8.8.8.8.

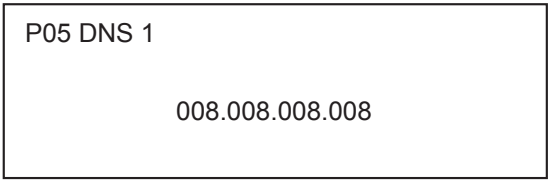


Figure 4-72 AcuDC-262 DNS 1 Address Configuration

4.8.6 Alternate DNS Server (DNS2)

Home > Network > DNS 2

To update the DNS2, use the navigation keys to set each digit. Continue until all digits have been set. Press the **ENTER** key to confirm the input. By default, the DNS2 is set to 8.8.4.4.

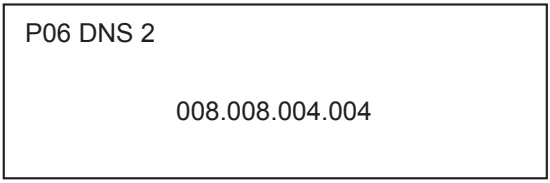


Figure 4-73 AcuDC-262 DNS 2 Address Configuration

4.8.7 Reset Network

Home > Network > Reset Network

The reset network setting resets the AcuDC-262 network back to its default settings. Use the navigation keys to switch between the **YES** and **NO** options. Select **YES** to reset the network. Press the **ENTER** key to confirm selection.

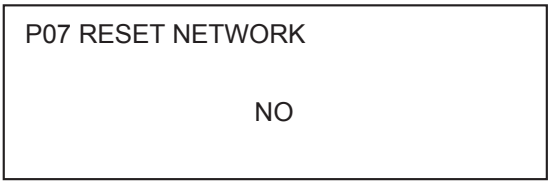


Figure 4-74 AcuDC-262 Reset Network Configuration

Chapter 5: AcuDC-261 Detailed Functions and Data Monitoring

The AcuDC-261 contains advanced metering functions for measuring a multitude of power, energy, and power quality parameters. Some advanced functions are not accessible directly from the AcuDC-261 display screen and must instead be accessed from the Acuview 2 Meter Data Management Software. This chapter introduces these functions and the Acuview 2 software.

5.1 Acuview 2

Acuview 2 is a meter data management software compatible with the Microsoft Windows® operating system that supplements the AcuDC-261 functionalities. It can be used to read and log advanced metering data, as well as configure and view settings remotely. This software is free to download at www.mod-tronic.com.

NOTE

The Acuview 2 full specifications and user manual can be downloaded at https://www.mod-tronic.com

5.1.1 Launch Acuview 2

When launching the Acuview 2, the **Add Connection** window will appear allowing users to select an existing meter from the list or add a new meter.

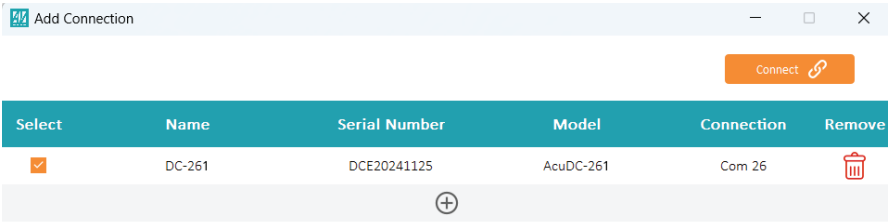


Figure 5-1 Acuview 2 Add Connection

Add a New Meter:

1. Click on the ⊕ button to open the **Add Device** panel. To establish a Modbus RTU or Modbus TCP connection, it will require information from the AcuDC-261 meter.

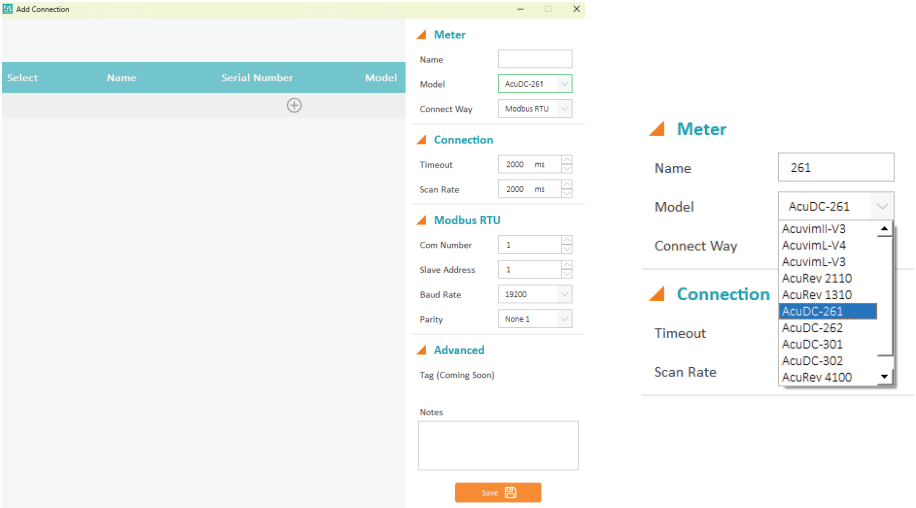


Figure 5-2 Add New AcuDC-261 Meter Using Acuview 2

2. Fill out each field parameter, see details below.

Parameter	Details
Name	Customized name for the AcuDC-261 meter.
Model	AcuDC-261
Meter Connect Way	Modbus RTU or Modbus TCP.
Timeout	Specifies the timeout for the AcuDC-261 meter connection, set at 2000 milliseconds (ms) by default.
Scan Rate	Acuview 2 polls data from the AcuDC-261 every 2000 ms by default.

3. Click on the **Save** button after all settings have been completed, and the AcuDC-261 meter will be successfully added to the list.

5.1.2 Connecting with Modbus RTU

AcuDC-261 settings can be accessed from the Acuview 2 by connecting it to a computer. The meter's RS485 port can be used to establish a connection through Modbus RTU over a half-duplex, single twisted pair two-wire link where data is passed in one direction at a time. The send (A+) and receive (B-) data signals are shared between the two wires.

Connecting the Meter to a Computer

To physically link the AcuDC-261 to a computer, a RS485-to-USB converter must be used.

Figure below depicts the wire configuration between the RS485-USB converter and the AcuDC-261. The AcuDC-261 RS485 port has three terminals, A (Positive), B (Negative), and S (Shield).

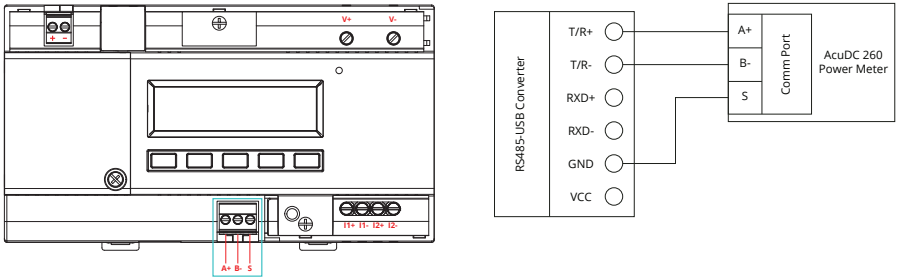


Figure 5-3 RS485-USB Connection to AcuDC-261

After connecting the RS485-to-USB converter to the computer, the COM port must be identified on the personal computer to establish a connection to the AcuDC-261 with the Acuview 2.

Identifying COM Port Number

1. Open the **Device Manager** window on the personal computer.
2. From the list, locate and click **Ports (COM & LPT)** to expand the selection to find the COM port number.

The following figure illustrates that the RS485-to-USB converter has been allocated to COM4.

> **NOTE** The COM port may be different on each PC. Be sure to identify the correct COM port number used by the RS485-to-USB converter.

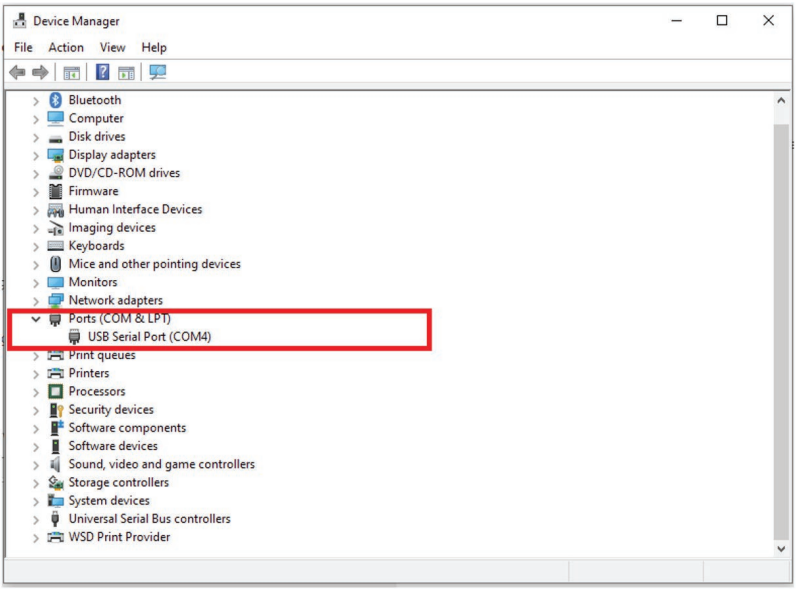


Figure 5-4 COM Port Number Assigned to RS485-to-USB Converter

Configuring Acuview 2 Add Meter Settings

After physically connecting the AcuDC-261 to the computer and identifying the COM port number, access the Add Meter panel to enter the Modbus RTU settings. See details below.

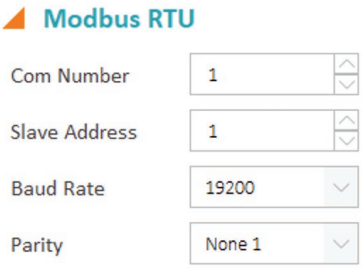


Figure 5-5 Acuview 2 Modbus RTU Connection Setting

Parameter	Details
Com Number	COM port number found on computer.
Slave Address	Ranges from 1 to 247.
Baud Rate	The rate at which information is transmitted. Select a baud rate (bps) from the options of 2400, 4800, 9600, 19200, 38400, 57600, and 115200.
Parity	Available parameter options for parity are **None1** (no parity, 1 stop bit), **None2** (no parity, 2 stop bit), **Even,** and **Odd.**

Once the AcuDC-261 has been successfully added to the Acuview 2, the connection can be established by selecting AcuDC-261 from the list and clicking on the Connect **Connect** button to automatically link the meter to the Acuview 2.

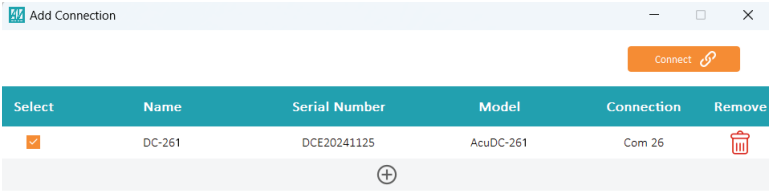


Figure 5-6 Connecting Acuview 2 via Modbus RTU

5.1.3 Connecting with Modbus TCP

The AcuDC-261 supports connection using Modbus TCP over the Ethernet network. To establish a connection using Modbus TCP, ensure the AcuDC-261 and computer are connected to the same local area network (LAN).

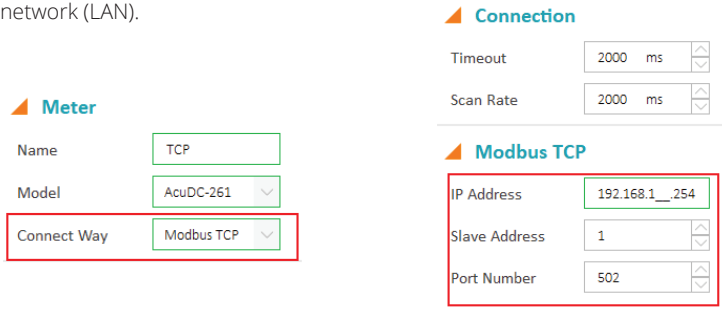


Figure 5-7 Acuview 2 Modbus TCP Connection Setting

Modbus TCP Settings	
IP Address	Enter IP address of the AcuDC-261 meter.
Unit ID (Slave ID)	Ranges from 1 to 247.
Port Number	Enter the Modbus port, default 502.

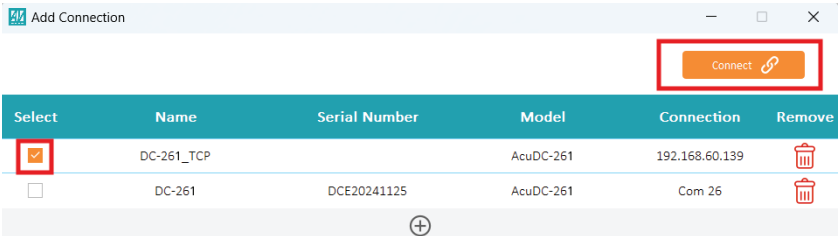


Figure 5-8 Connecting Acuview 2 via Modbus TCP

Once the AcuDC-261 has been successfully added to the Acuview 2, the connection can be established by selecting the AcuDC-261 meter from the list and clicking on the **Connect** button to automatically link the meter to the Acuview 2.

5.2 Real-Time Readings

The Acuview 2 can be used to retrieve real-time metering measurements from the AcuDC-261 for monitoring and analysis. Users can access metering parameters such as current, voltage as well as energy, charge and max/min statistics.

5.2.1 Basic Analog Measurements

Device Tab > Reading > Real-Time Reading > Real-Time Metering

The AcuDC-261 metering information can be accessed from the Acuview 2 to monitor basic analog measurements. A full summary of these parameters is listed in the following table.

Table 5-1 AcuDC-261 Basic Analog Measurements

Parameter Type	Parameter Name	Resolution	Accuracy
Basic	Measured Voltage	0.001V	0.1%
	Compensated Voltage 1	0.001V	0.1%
	Compensated Voltage 2	0.001V	0.1%
	Current Sum	0.001A	0.2% - DC 261
	Current 1	0.001A	0.2% - DC 261
	Current 2	0.001A	0.2% - DC 261
	Power Sum	0.001kW	0.5%
	Power 1	0.001kW	0.5%
	Power 2	0.001kW	0.5%
	Voltage Ripple Factor	0.001%	N/A
	Current Ripple Factor 1	0.001%	N/A
	Current Ripple Factor 2	0.001%	N/A

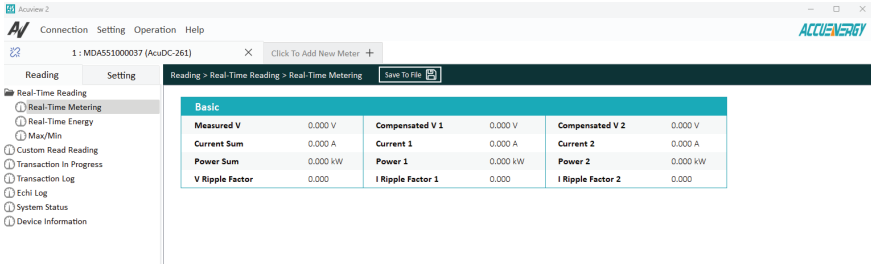


Figure 5-9 AcuDC-261 Accessing Real-Time Metering Data via Acuview 2

5.2.2 Energy and Charge

Device Tab > Reading > Real-Time Reading > Real-Time Energy

AcuDC-261 measures both energy and electrical charge, providing import, export, net, and total values for each respective channel and its sum, enabling comprehensive monitoring of DC Power flow and cumulative current. A full summary of these energy and charge parameters is listed in the following table.

Table 5-2 AcuDC-261 Energy and Charge Measurements

Parameter Type	Parameter Name	Resolution	Accuracy
Energy	Import Energy 1	0.0001kWh	0.5%
	Import Energy 2	0.0001kWh	0.5%
	Import Energy Sum	0.0001kWh	0.5%
	Export Energy 1	0.0001kWh	0.5%
	Export Energy 2	0.0001kWh	0.5%
	Export Energy Sum	0.0001kWh	0.5%
	Net Energy 1	0.0001kWh	0.5%
	Net Energy 2	0.0001kWh	0.5%
	Net Energy Sum	0.0001kWh	0.5%
	Total Energy 1	0.0001kWh	0.5%
	Total Energy 2	0.0001kWh	0.5%
	Total Energy Sum	0.0001kWh	0.5%
Charge	Import Charge 1	0.0001Ah	0.2%
	Import Charge 2	0.0001Ah	0.2%
	Import Charge Sum	0.0001Ah	0.2%
	Export Charge 1	0.0001Ah	0.2%
	Export Charge 2	0.0001Ah	0.2%
	Export Charge Sum	0.0001Ah	0.2%
	Net Charge 1	0.0001Ah	0.2%
	Net Charge 2	0.0001Ah	0.2%
	Net Charge Sum	0.0001Ah	0.2%
	Total Charge 1	0.0001Ah	0.2%
	Total Charge 2	0.0001Ah	0.2%
	Total Charge Sum	0.0001Ah	0.2%

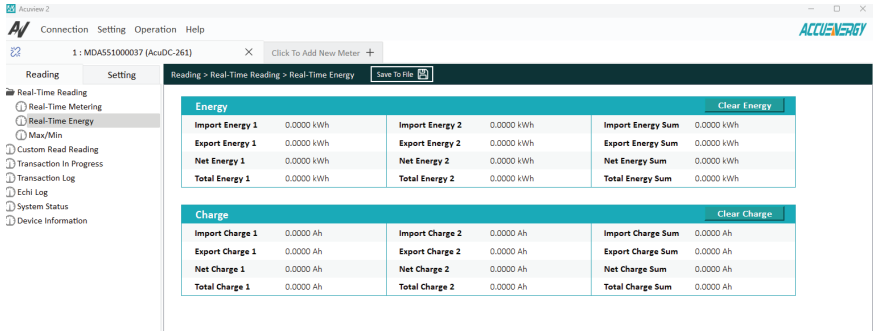


Figure 5-10 AcuDC-261 Real-Time Energy Readings

Reset Energy and Charge Readings

To clear the readings to zero, click on the Clear Energy and Clear Charge buttons to reset the respective readings to zero.

> **NOTE** Clearing Energy and Charge parameters requires administrative permission. A prompt will appear to enter a four-digit passcode.

5.2.3 Max/Min

AcuDC-261 logs maximum and minimum value statistics for all real time parameters along with timestamps of when they occurred. All data is stored in non-volatile memory, so all statistical information is preserved when the AcuDC-261 loses power or is powered off.

Device Tab > Real-Time Reading > Max/Min

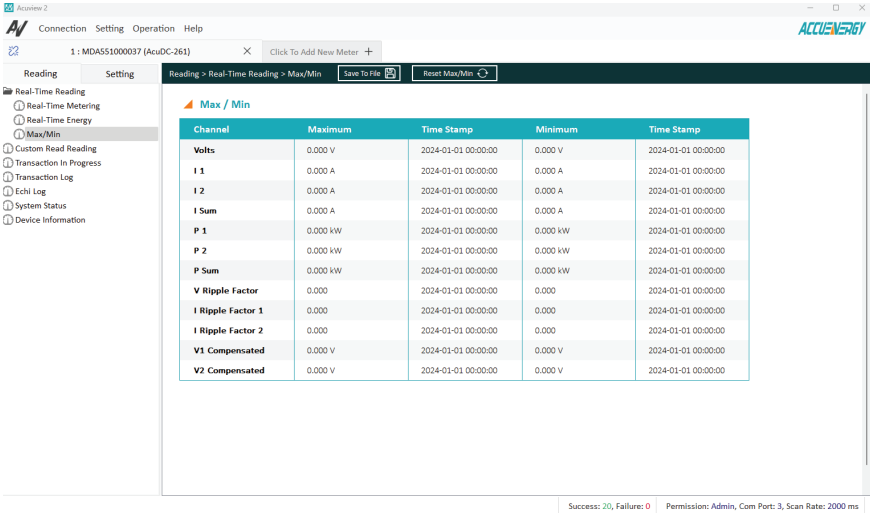


Figure 5-11 AcuDC-261 Max and Min Readings

Reset Max/Min Readings

The **Reset Max/Min** button updates both minimum and maximum stored values with the latest real-time, instantaneous readings.

5.3 Custom Read

Device Tab > Setting > Custom Read

The **Custom Read** function allows users to select specific parameters for monitoring and retrieval. Users can pull the values of chosen parameters either via Modbus communication or view real-time readings directly in Acuview 2.

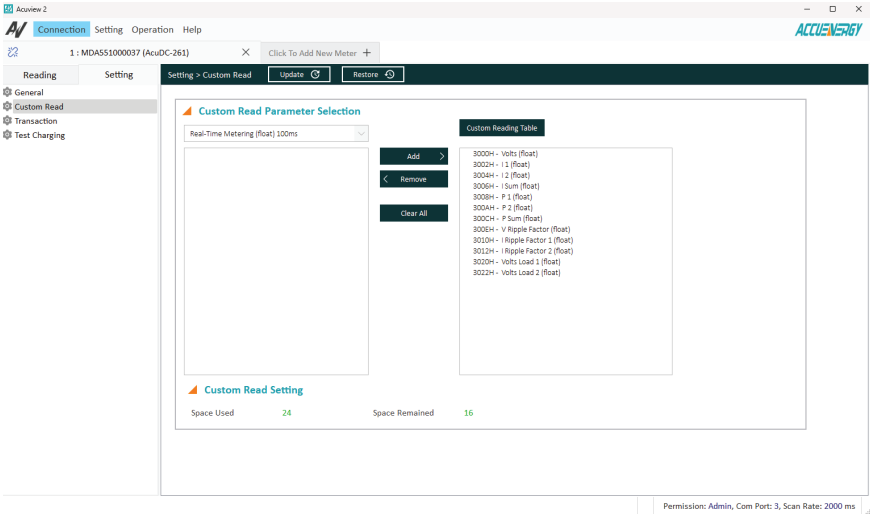


Figure 5-12 AcuDC-261 Custom Read Parameter Selection

Add, Remove and Clear Custom Read Parameters

1. To add custom parameters, select the parameter type from the drop-down menu.
2. Next, select one or more items from the left box. Click the **Add** button.
3. To remove parameters, select one or more items from the right box. Click the **Remove** button.
4. The **Clear All** button will remove all parameters from the right box.
5. Click on the **Update** button

Access Custom Read Reading Page

Device Tab > Reading > Custom Read Reading

To access and view the custom parameter readings, click on the Reading menu tab. Next, click Custom Read Reading.

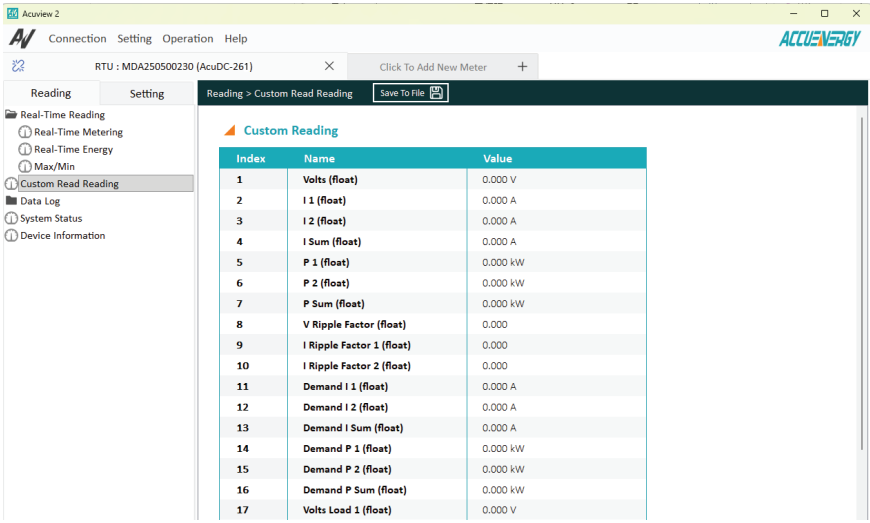


Figure 5-13 AcuDC-261 Custom Read Reading

5.4 Meter Settings

The **General Settings** can be configured from the AcuDC-261 screen, Modbus registers, and Acuview 2.

To apply any changes made to the AcuDC-261 settings, users must click the **Update** button at the top of the panel.

5.4.1 IP Settings

Device Tab > Setting > General

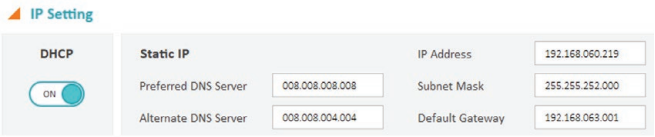


Figure 5-14 AcuDC-261 IP Settings

Parameters	Description
DHCP	Enabling DHCP allows the IP, Mask, and Gateway addresses will be automatically assigned. Disabling DHCP allows the user to manually configure the IP address.
Preferred DNS Server	Enter the IP address as the primary DNS server. This can also be configured from the meter screen (DNS1).
Alternate DNS Server	Enter the IP Address as a backup DNS server. This can also be configured from the meter screen (DNS2).
IP Address	Enter the IP address of the network. When DHCP is ON, the IP address will be configured automatically.
Subnet Mask	Enter the subnet mask. This can also be configured from the meter screen.
Default Gateway	Enter the gateway IP address. This can also be configured from the meter screen.

5.4.2 Modbus Settings

Device Tab > Setting > General

The **Modbus Settings** section allows the user to enable and configure the Modbus RTU and Modbus TCP settings.

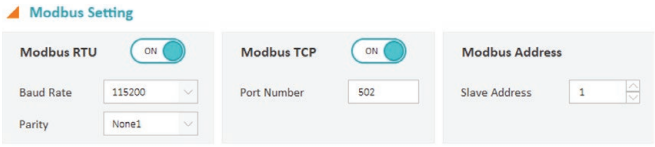


Figure 5-15 AcuDC-261 Modbus Settings

Parameters	Description
Baud Rate	The communication speed measured in bits per second. The default value is 19200, with additional options: 2400, 4800, 9600, 38400, 57600, 76800, or 115200.
Parity	The communication parity options are None1, None2, Odd, and Even. By default, setting is None1, indicating no parity and 1 stop bit
Port Number	Enter the Modbus port number with a range from 1 to 65,534. By default, the port number is 502.
Slave Address	Enter a unique number ID for the Modbus Slave device, with the default value being 1. The allowable range is from 1 to 247.

ALERT

A factory reset will return the baud rate to 19200, and its protocol will be reset to Modbus. The parity channel will be set to NONE1 and the default slave ID address to 1.

5.4.3 PT and CT Ratios Settings

Device Tab > Setting > General

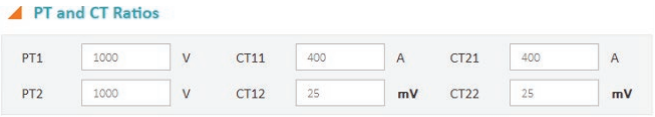


Figure 5-16 AcuDC-261 PT and CT Configuration

Parameters	Description
PT1	Configures the primary voltage transformer ratio.
PT2	Configures the secondary voltage transformer ratio.
CT11	Configures the primary current of the shunt ratio for the first measurement channel.
CT12	Configures the secondary output of the shunt ratio for the first measurement channel.
CT21	Configures the primary current of the shunt ratio for the second measurement channel.
CT22	Configures the secondary output of the shunt ratio for the second measurement channel.

5.4.4 Real-Time Reading Settings

Device Tab > Setting > General

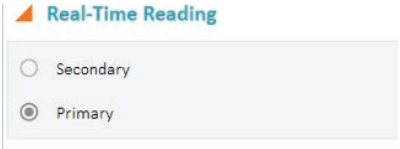


Figure 5-17 AcuDC-261 Real-Time Reading Configuration

Parameters	Description
Secondary	Raw measurements at the meter inputs.
Primary	Scaled measurements that represent the actual system values using the CT/PT ratios.

5.4.5 Energy Reading Settings

Device Tab > Setting > General

The AcuDC-261 allows users to configure energy readings for accurate measurement and reporting.

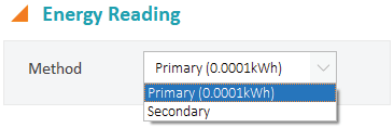


Figure 5-18 AcuDC-261 Energy Reading Settings

AcuDC-261 energy is calculated with the following equation.

$$E = V_{DC} \times I_{DC} \times \Delta_t$$

Where V_{DC} refers to DC voltage, I_{DC} refers to DC current, Δ_t refers to the load time duration.

5.4.6 Energy Pulse Settings

Device Tab > Setting > General

The **Energy Pulse** section of the AcuDC-261 is used to monitor and output pulse signals related to energy consumption or generation using LED pulses. Energy pulse is an electrical signal sent from the meter to represent a fixed amount of energy consumed. The more energy consumed, the more pulses will be sent.

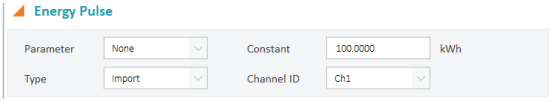


Figure 5-19 AcuDC-261 Energy Pulse Settings

Parameters	Description
Parameters	None: No pulse output. Energy: Outputs LED pulse signals related to total energy consumption. Charge: Outputs LED pulse signals related to electrical charge consumption.
Pulse Constant	Defines the pulse constant, in pulses per kWh, used to convert energy into LED pulse signals.
Type	Import: Represents consumed energy from the grid. Export: Represents generated energy exported to the grid. Net: Net energy (import minus export). Total: Total energy (import plus export).
Channel ID	Specifies the channel for LED pulse output: Ch1: Channel 1. Ch2: Channel 2. Sum: The sum of all channels.

5.4.7 Security Settings

Device Tab > Setting > General

The **Security Settings** allows for the password to be updated. A password is needed for certain configuration settings.

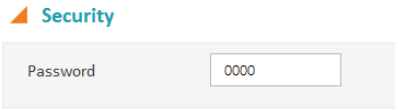


Figure 5-20 AcuDC-261 Password Settings

To access the AcuDC-261 settings on screen, the user must enter a four-digit password. By default, the meter password is 0000. This password can be changed on Acuview 2.

5.4.8 Cable Loss Compensation Settings

Device Tab > Setting > General

Cable resistance can lead to inaccuracies in energy measurements, as a portion of the energy will be dissipated as heat. For billing applications such as EV charging stations, it is important to ensure the customer is only billed for the amount that is delivered. The AcuDC-261 compensates for cable losses using its resistance, ensuring accurate and reliable measurements.



Figure 5-21 AcuDC-261 Cable Loss Compensation Settings

Parameters	Description
Cable 1 Resistance	Enter the total resistance of cable 1. Ranges from 0Ω to 999.9999Ω.
Cable 2 Resistance	Enter the total resistance of cable 2. Ranges from 0Ω to 999.9999Ω.

5.4.9 System Mode

Device Tab > Setting > General

The AcuDC-261 supports three system modes with different access levels and functional restrictions. System modes are designed to control configuration authority during different stages of the product lifecycle, such as factory setup, commissioning, and normal operation.

Available System Modes:

- Production Mode: Factory mode used during manufacturing and calibration. All parameters are accessible and modifiable. This mode is not intended for end users.
- Assembly Mode: A temporary configuration mode used during installation and commissioning. Limited settings are accessible for adjustment.
- Normal Mode: Default operating mode for daily use. Only general operational settings are accessible.

Assembly Mode Access:

Assembly Mode can be entered through the Acuview 2 software interface. From Acuview 2, navigate to Device Tab > Setting > General > System Mode and select Enter Assembly Mode. When prompted, enter the system password to authenticate the operation. The default system password is 0000. After successful authentication, a confirmation message is displayed, indicating that the device has entered Assembly Mode.

Assembly Mode is time-limited and remains active for 10 seconds. Once the timeout period expires, the system automatically exits Assembly Mode and returns to Normal Mode without requiring any additional user action.

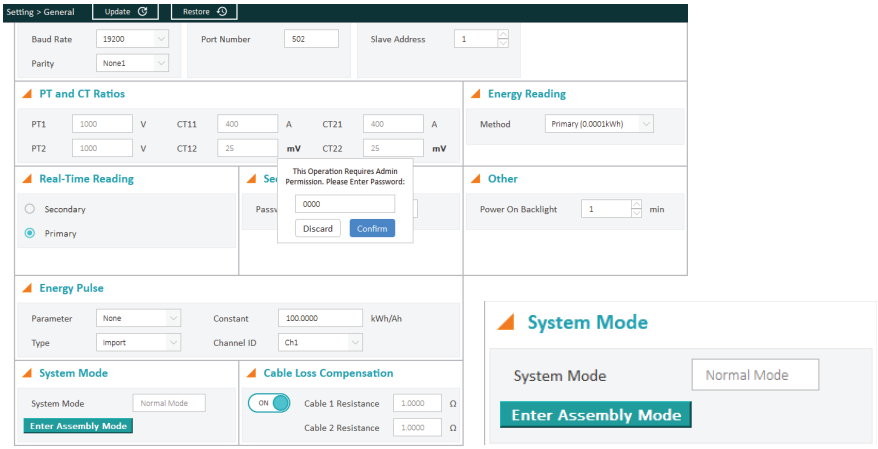


Figure 5-22 AcuDC-261 Assembly Mode Access

Assembly Mode Permissions and Limitations:

While the device is operating in Assembly Mode, configuration access is restricted to a limited set of commissioning-related parameters. During this period, users are allowed to enable or disable Cable Loss Compensation and to modify the associated cable resistance parameters.

All other metrology-critical parameters remain protected while in Assembly Mode. Energy values cannot be modified, stored records cannot be deleted, and any additional protected parameters remain locked.

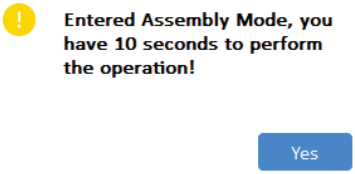


Figure 5-23 Assembly Mode

5.4.10 Transaction

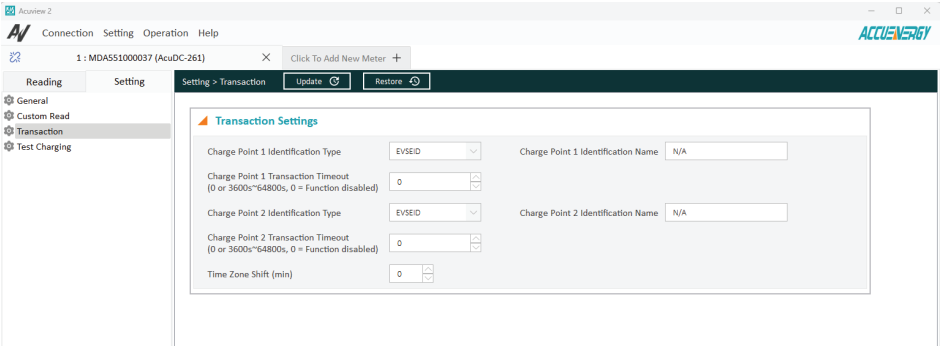


Figure 5-24 AcuDC-261 Transaction Setting

The Transaction function is used to transmit charging-session configuration parameters to the meter before a charging session begins. These parameters identify the charging point, define the session context, and ensure that the resulting measurement records can be correctly associated with the charging equipment. The Transaction configuration works together with the device's time settings to guarantee traceable and verifiable billing records.

It is important to distinguish between **Time Setting** and **Time Synchronization,** both of which influence Transaction processing:

- **Time Setting:** Updates only the device clock (year, month, day, hour, minute, second).
- **Time Synchronization:** Applies both the clock time and the time-zone offset. Only a single synchronization transmission is required after startup unless the charging system requires additional updates.

A charging timeout parameter is also included in the Transaction settings. If a charging session exceeds the configured timeout period, the meter will trigger an error to prevent invalid or uncontrolled charging operations. Users should configure this timeout according to the maximum expected duration of their charging equipment.

By correctly configuring Transaction parameters, the meter ensures that each charging session starts with validated identification, accurate time context, and a defined timeout mechanism, forming the basis for reliable EV billing records and downstream transparency functions such as Transaction Log and Eichlog.

5.4.11 Test Charging

This page simulates the charging transaction process of a charging station.

1. The charging station sends configuration parameters. The Update button must be clicked to apply these parameters.
2. To start charging, click the Start Charging button, sending the charging start command.
3. During charging, the charging station can read partial information of the current transaction, particularly the transaction log ID.
4. Upon completion, the charging station sends the charging stop command. Clicking the Stop Charging button causes the device to append the transaction log and store it, waiting for the charging station to read the current transaction log.
5. After charging ends, the charging station uses the transaction log ID obtained during charging to retrieve the complete transaction log for settlement purposes.



NOTE

Both “Stop Charging” and “Abort Charging” buttons trigger the creation of a transaction log. In the transaction log, only the content of the TX field differs:

- For Stop Charging, TX is recorded as “E”.
- For Abort Charging, TX is recorded as “A”.

When the device power supply is lost, the TX field in the transaction log is recorded as “P”.

Session data: For session data, users must decide whether to apply real-time configuration updates or update only once, depending on actual requirements. If the data changes for every charging session, the update must be issued before each session.

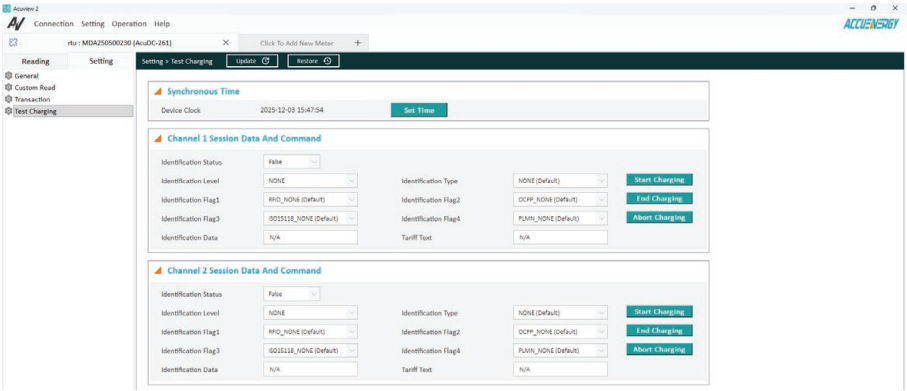


Figure 5-25 AcuDC-261 Test Charging Setting

Time synchronization allows the simulated charging station to synchronize the device time for more accurate settlement. Essentially, time synchronization updates the device clock. However, when recording logs, the time zone offset must also be written due to format requirements.

The charging process control is as follows:

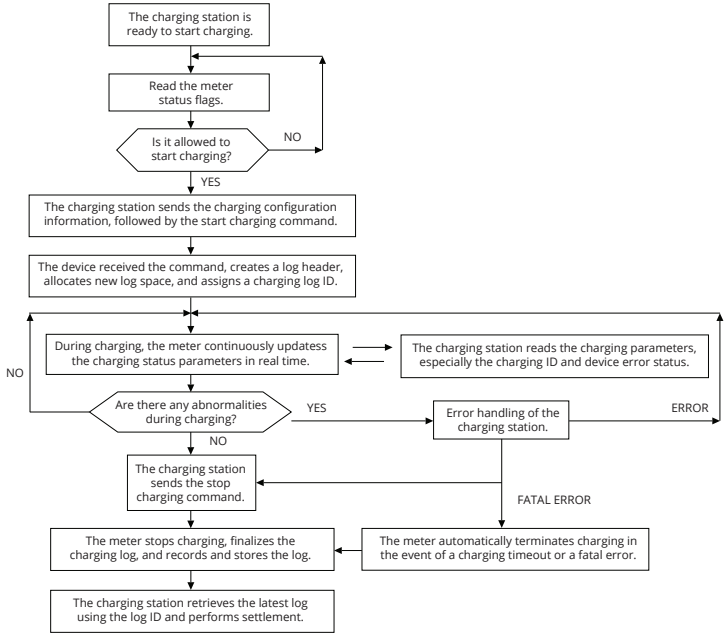


Figure 5-26 AcuDC-261 Test Charging Flow Chart

NOTE The meter automatically terminates charging in the event of a charging timeout or a fatal error.

5.4.12 Other Settings

Device Tab > Setting > General

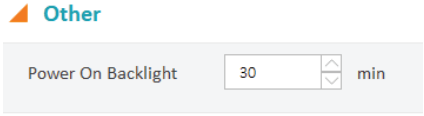


Figure 5-27 Power On Backlight Settings

Parameters	Description
Backlight	Default setting is 30 minutes, adjustable from 0 to 120 minutes. AcuDC-261 Backlight will turn off post duration. When the value is set to 0, the backlight will remain on indefinitely.

5.5 Transaction

5.5.1 Transaction in Progress

This page provides real-time visibility into the charging session while it is in progress. During charging, the meter continuously updates and reports session-related parameters, allowing the charging station to monitor the status of the session and determine whether to continue or terminate charging when abnormal conditions occur.

Time Synchronization Status: Accurate timekeeping is essential for compliant and verifiable billing records. The meter monitors the validity of its synchronization state based on the time synchronization commands received from the charging station.

- If the difference between the meter time and the last received synchronization time exceeds 300 seconds, the event is recorded in Eichlog.
- If no synchronization command is received within 24 hours, the meter automatically switches its synchronization status to **Unsynchronized.**
- Users may periodically issue a time synchronization command, which must include both the device time and the time-zone offset, depending on system requirements.

These mechanisms ensure that each transaction record is accompanied by validated timing information for settlement and auditing purposes.

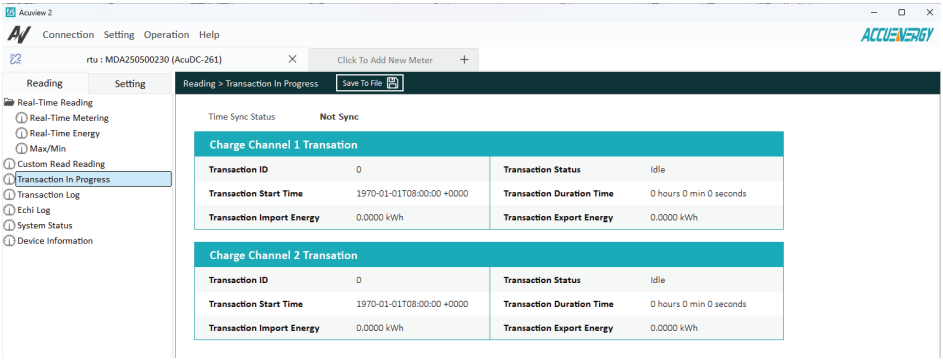


Figure 5-28 AcuDC-261 Transaction in Progress

5.5.2 Transaction Log

The meter supports OCMF-compliant transaction log generation for EV billing applications. Transaction logs are stored in JSON format and contain all required session-level information, including start and end meter values, timestamps, termination status, and digital signature content.

The supported OCMF version is 1.1, with a maximum of 61,440 stored records. When storage is full, the device reports an error. Logs can be cleared only when the meter is not in a sealed state.

OCMF Data Structure: OCMF | <payload data section> | <signature section>

To reduce the time required to read valid data, a flexible data reading method has been designed.

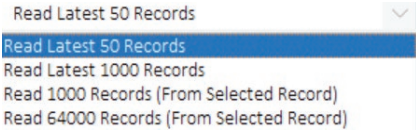


Figure 5-29 AcuDC-261 Transaction Log Record List Selection

The TX field in the transaction log indicates how the charging session ended. Depending on the termination condition, the TX field takes one of the following values:

P	Power loss during the session.
A	Session aborted by the charging station.
E	Session ended due to charging timeout (meter-initiated termination).
A	Session terminated due to a fatal error detected by the meter.
E	Normal termination using the Stop Charging command.

These termination codes ensure downstream settlement systems can accurately interpret the transaction state and handle exceptional conditions appropriately.

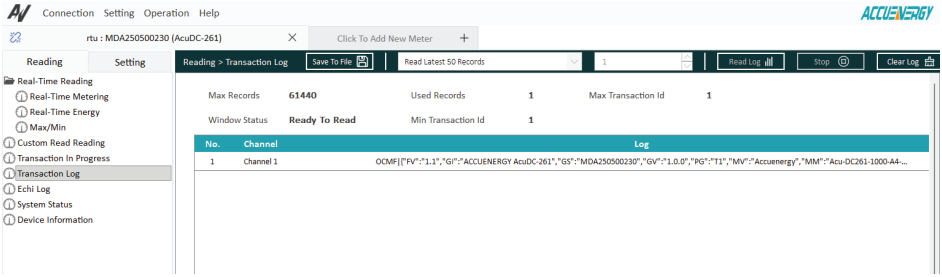


Figure 5-30 AcuDC-261 Transaction Log

5.6 EichLog

The device provides statutory metrology event logs that record system changes and critical events required for legal metrology compliance. The EichLog records the following information:

- Each verification failure, including both old and new values.
- Changes in system mode, including old and new values.
- Changes in seal status, including old and new values.
- Transaction log full.
- Event log full.
- Changes in Cable Loss Enable configuration, including old and new values.
- Changes in Cable Loss Resistance configuration, including old and new values.
- Changes in Pulse LED Energy configuration, including old and new values.
- Changes in Charge Point Identification Type configuration, including old and new values.
- Changes in Charge Point Identification configuration, including old and new values.
- Time synchronization deviations exceeding 300 seconds, including old and new time values.

Maximum Capacity: 6,000 records

When the storage capacity is reached, the device reports an error. Log records can be cleared only when the device is not in a sealed state.

To improve efficiency when retrieving log data, the device provides a flexible data reading mechanism that allows users to read the latest records or a selected range of records as needed.

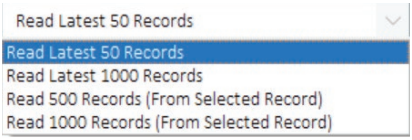


Figure 5-31 AcuDC-261 EichLog Record List Selection

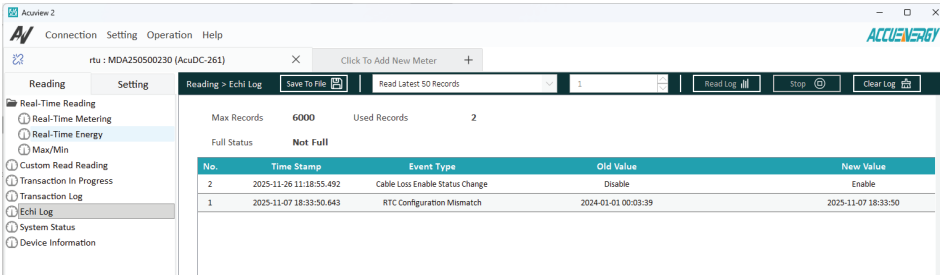


Figure 5-32 AcuDC-261 EichLog

5.7 Time & Date Configuration

Device Tab > Reading > System Status

The time and date of AcuDC-261 can be configured on Acuview 2 or by writing to the Modbus registers, see Chapter 6 for more details.

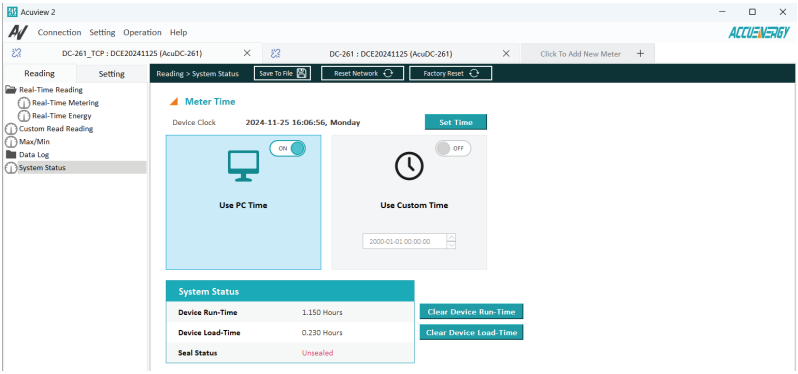


Figure 5-33a AcuDC-261 Time Configuration

Integrity Check Result

Integrity Check	Status
Boot Firmware	Normal
App Firmware	Normal
Product	Normal
ADC Calibration	Normal
Measure Configuration	Normal
Energy Data	Normal
Echilog Data	Normal
Transaction Data	Normal

Fatal Error Status

Fatal Error Type	Status
Data integrity	Normal
Log storge	Normal
RTC works	Normal
ADC works	Normal
Storage	Normal

Figure 5-33b AcuDC-261 Time Configuration

Set Date and Time

The date and time for the AcuDC-261 can be based on the computer's internal clock the Acuview 2 is installed on or by using a custom time entered by the user.

Modes	Description
Use PC Time	Synchronize it with the PC's internal system clock.
Use Custom Time	Set the time on AcuDC-261 manually.

1. Enable Use PC Time or Use Custom Time.
2. If Use Custom Time is enabled, enter the custom date and time in the field.
3. Once an option is selected, click the **Set Time** Set Time button to confirm the changes.

ALERT

The AcuDC-261 will retain its time settings when powered off. However, if it remains off for more than three days, it will revert to default time.

Clear Device Run-Time and Load-Time

The AcuDC-261 allows the device to reset its counters to zero.

Modes	Description
Clear Device Run-Time	Resets the device run-time back to zero.
Clear Device Load-Time	Resets the device load-time back to zero.

NOTE

The device run-time and load-time cannot be reset if the device is sealed.

5.8 Device Information

Device Tab > Reading > Device Information

The AcuDC-261 device information page can be viewed on the Acuview 2.

Device Information includes:

- Serial Number
- Hardware Version
- Bootloader Version
- Firmware Version
- Function Model
- Voltage Input
- Current Input
- Power Supply
- Mac Address
- Release Date
- External CT Type
- Certification Type

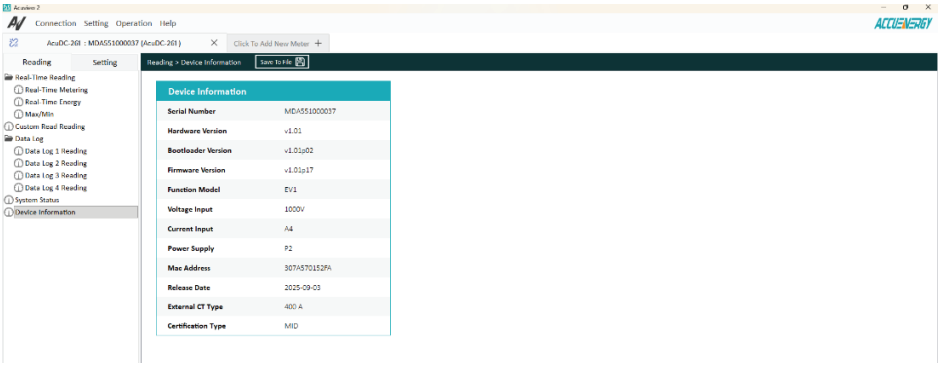


Figure 5-34 Device Information Page

5.9 Firmware Updates

The AcuDC-261 Firmware Update section describes the procedure for updating the firmware through the Acuview 2 software application. It is recommended to keep the firmware current to receive the latest features, security updates for improved performance.

Manual Firmware Update

1. Download the latest version of the AcuDC-261 firmware from www.mod-tronic.com support/product-support-documents/.
2. From the main menu, click the **Operation** menu and select **Firmware Update.**

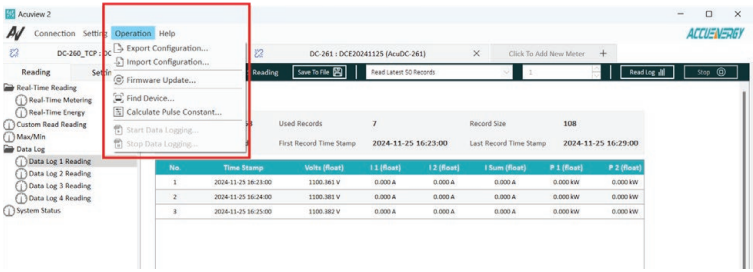


Figure 5-35 Firmware Update Screen

3. Click on the **Select Firmware File** button to open the file folder window. Browse to locate the downloaded firmware file identified by the "MFEA" extension.
4. Acuview 2 can scan and display all active serial ports and TCP connections. Toggle Scan Mode on to scan serial ports.

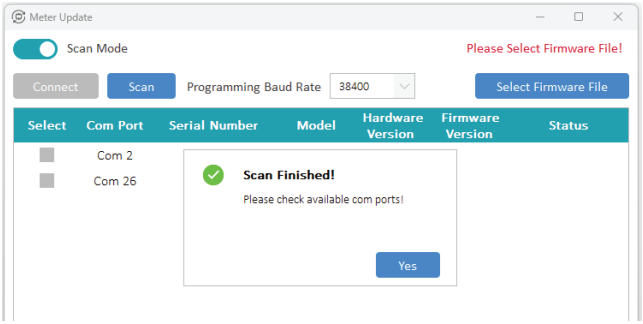


Figure 5-36 Scan Mode Screen

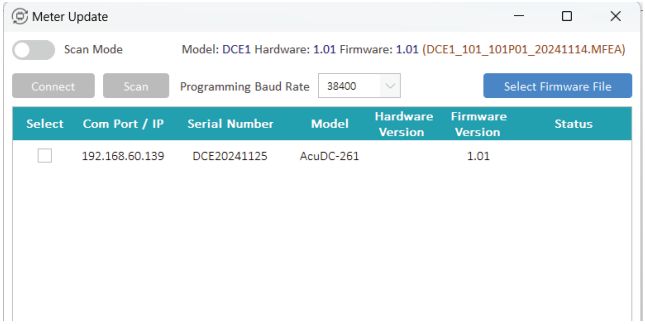


Figure 5-37 TCP Scan Mode Screen

5. Select the AcuDC-261, then click the **Connect** button.
6. A **Connect Setting** panel will appear to configure the parameters according to the RS485 settings of AcuDC-261.

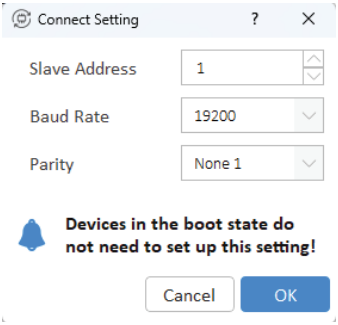


Figure 5-38 Connection Setting Screen

Parameter	Description
Slave Address	Enter the Slave ID of the meter to be updated.
Baud Rate	Select the transmission speed.
Parity	Enable error-checking with choice of Odd or Even. If no error-checking is needed, choose None.

7. If the connection is successfully established, the upgrade will start automatically.

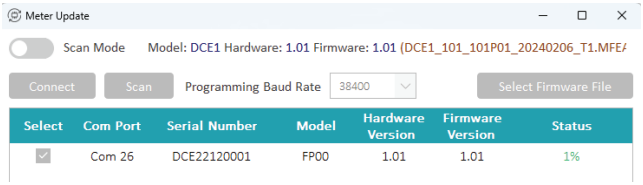


Figure 5-39 Connection Setting Screen

8. After the upgrade is complete, AcuDC-261 will restart automatically.

ALERT

Do not disconnect the AcuDC-261 from the computer during the upgrade process. If the upgrade fails, restart the AcuDC-261 and try the firmware update again.

For further assistance, please contact Mod-Tronic Technical Support.

Chapter 6: AcuDC-262 Detailed Functions and Data Monitoring

The AcuDC-262 contains advanced metering functions for measuring a multitude of power, energy, and power quality parameters. Some advanced functions are not accessible directly from the AcuDC-262 display screen and must instead be accessed from the Acuview 2 Meter Data Management Software. This chapter introduces these functions and the Acuview 2 software.

6.1 Acuview 2

Acuview 2 is a meter data management software compatible with the Microsoft Windows® operating system that supplements the AcuDC-262 functionalities. It can be used to read and log advanced metering data, as well as configure and view settings remotely. This software is free to download at www.mod-tronic.com.

NOTE

The Acuview 2 full specifications and user manual can be downloaded at www.mod-tronic.com

6.1.1 Launch Acuview 2

When launching the Acuview 2, the **Add Connection** window will appear allowing users to select an existing meter from the list or add a new meter.

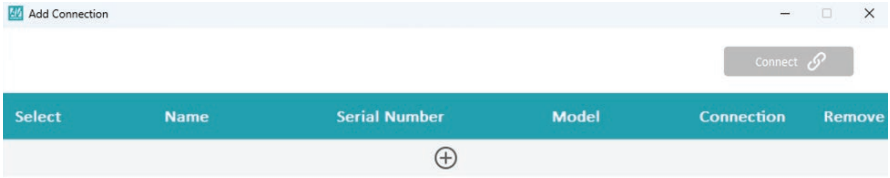


Figure 6-1 Acuview 2 Add Connection

Add a New Meter:

1. Click on the ⊕ button to open the **Add Device** panel. To establish a Modbus RTU or Modbus TCP connection, it will require information from the AcuDC-262 meter.

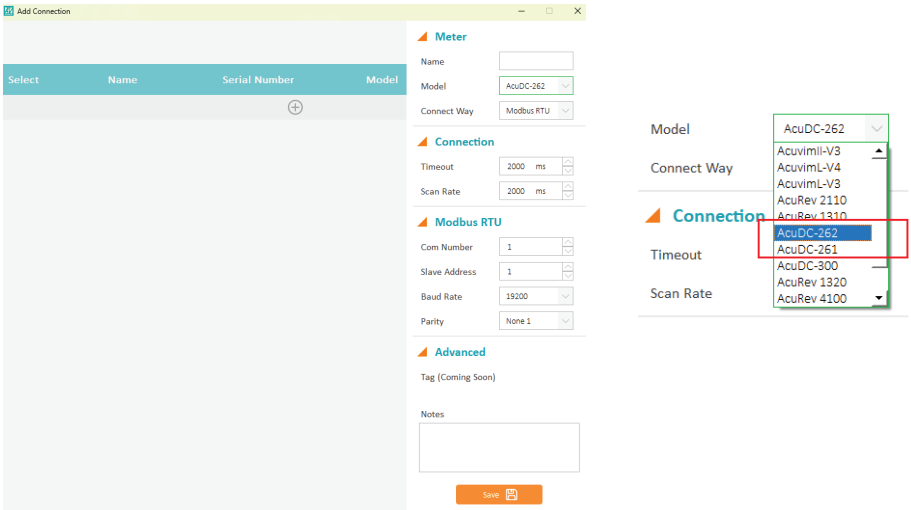


Figure 6-2 Add New AcuDC-262 Meter Using Acuview 2

2. Fill out each field parameter, see details below.

Parameter	Details
Name	Customized name for the AcuDC-262 meter.
Model	AcuDC-262
Meter Connect Way	Modbus RTU or Modbus TCP.
Timeout	Specifies the timeout for the AcuDC-262 meter connection, set at 2000 milliseconds (ms) after no response by default.
Scan Rate	Acuview 2 polls data from the AcuDC-262 every 2000 ms by default.

3. Click on the **Save** button after all settings have been completed, and the AcuDC-262 meter will be successfully added to the list.

6.1.2 Connecting with Modbus RTU

AcuDC-262 settings can be accessed from the Acuview 2 by connecting it to a computer. The meter's RS485 port can be used to establish a connection through Modbus RTU over a half-duplex, single twisted pair two-wire link where data is passed in one direction at a time. The send (A+) and receive (B-) data signals are shared between the two wires.

Connecting the Meter to a Computer

To physically link the AcuDC-262 to a computer, a RS485-to-USB converter must be used.

Figure below depicts the wire configuration between the RS485-USB converter and the AcuDC-262. The AcuDC-262 RS485 port has three terminals, A (Positive), B (Negative), and S (Shield).

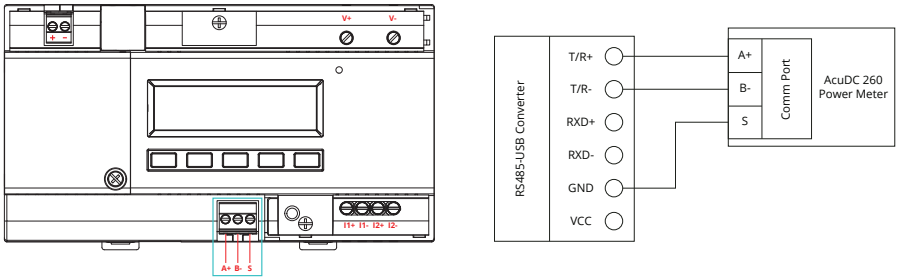


Figure 6-3 RS485-USB Connection to AcuDC-262

After connecting the RS485-to-USB converter to the computer, the COM port must be identified to establish a connection to the AcuDC-262 with the Acuview 2.

Identifying COM Port Number

1. Open the **Device Manager** window on the personal computer.
2. From the list, locate and click **Ports (COM & LPT)** to expand the selection to find the COM port number.

The following figure illustrates that the RS485-to-USB converter has been allocated to COM4.

NOTE The COM port may be different on each PC. Be sure to identify the correct COM port number used by the RS485-to-USB converter.

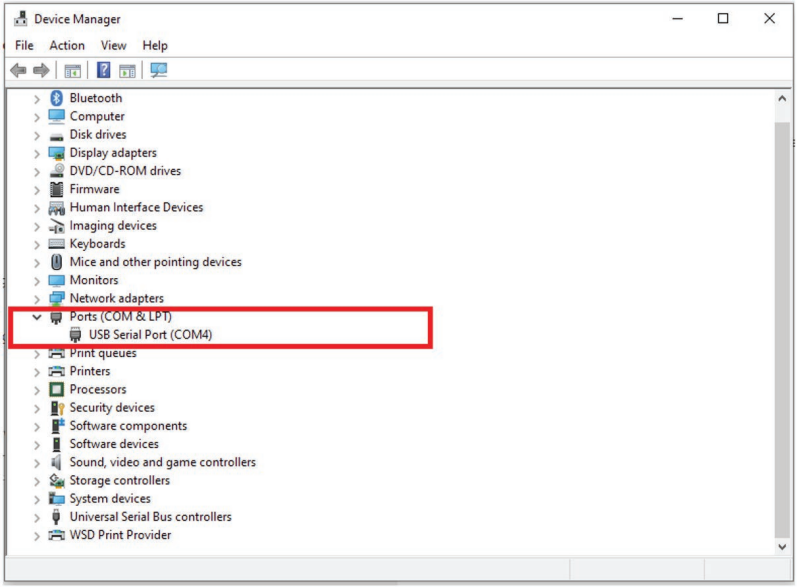


Figure 6-4 COM Port Number Assigned to RS485-to-USB Converter

Configuring Acuview 2 Add Meter Settings

After physically connecting the AcuDC-262 to the computer and identifying the COM port number, access the Add Meter panel to enter the Modbus RTU settings. See details below.

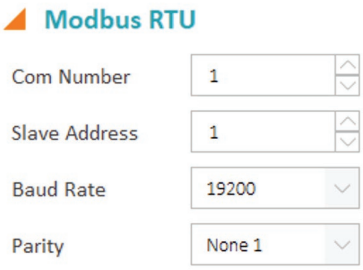


Figure 6-5 Acuview 2 Modbus RTU Connection Setting

Parameter	Details
Com Number	COM port number found on computer.
Slave Address	Ranges from 1 to 247.
Baud Rate	The rate at which information is transmitted. Select a baud rate (bps) from the options of 2400, 4800, 9600, 19200, 38400, 57600, and 115200.
Parity	Available parameter options for parity are **None1** (no parity, 1 stop bit), **None2** (no parity, 2 stop bit), **Even,** and **Odd.**

Once the AcuDC-262 has been successfully added to the Acuview 2, the connection can be established by selecting AcuDC-262 meter from the list and clicking on the Connect **Connect** button to automatically link the meter to the Acuview 2.

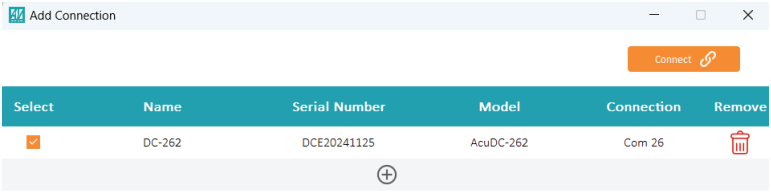


Figure 6-6 Connecting Acuview 2 via Modbus RTU

6.1.3 Connecting with Modbus TCP

The AcuDC-262 supports connection using Modbus TCP over the Ethernet network. To establish a connection using Modbus TCP, ensure the AcuDC-262 and computer are connected to the same local area network (LAN).

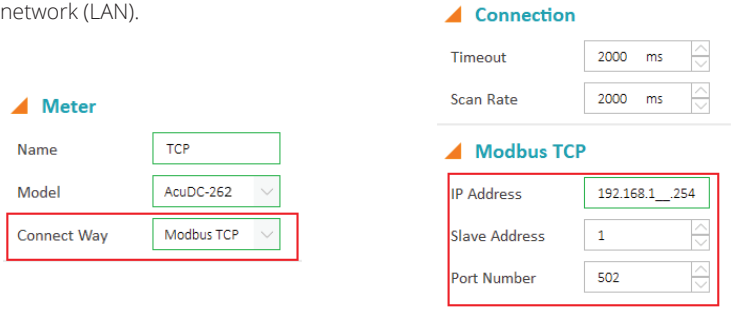


Figure 6-7 Acuview 2 Modbus TCP Connection Setting

Modbus TCP Settings	
IP Address	Enter IP address of the AcuDC-262 meter.
Unit ID (Slave ID)	Ranges from 1 to 247.
Port Number	Enter the Modbus port, default 502.

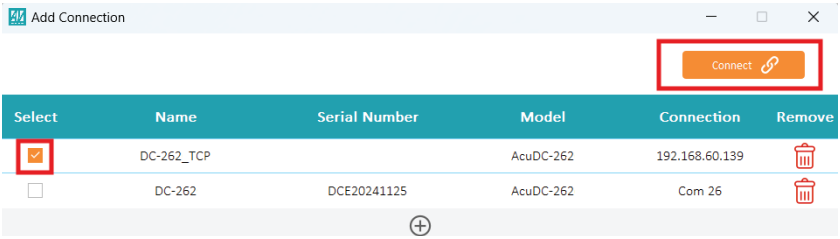


Figure 6-8 Connecting Acuview 2 via Modbus TCP

Once the AcuDC-262 has been successfully added to the Acuview 2, the connection can be established by selecting the AcuDC-262 from the list and clicking on the Connect **Connect** button to automatically link the meter to the Acuview 2.

6.2 Real-Time Readings

The Acuview 2 can be used to retrieve real-time metering measurements from the AcuDC-262 for monitoring and analysis. Users can access metering parameters such as current, voltage as well as demand, energy, charge and max/min statistics.

6.2.1 Basic Analog Measurements

Device Tab > Reading > Real-Time Reading > Real-Time Metering

The AcuDC-262 metering information can be accessed from the Acuview 2 to monitor basic analog measurements. A full summary of these parameters is listed in the following table.

Table 6-1 AcuDC-262 Basic Analog Measurements

Parameter Type	Parameter Name	Resolution	Accuracy
Basic	Measured Voltage	0.001V	0.1%
	Compensated Voltage 1	0.001V	0.1%
	Compensated Voltage 2	0.001V	0.1%
	Current Sum	0.001A	0.5% - DC 261 0.2% - DC 262
	Current 1	0.001A	0.2% - DC 262
	Current 2	0.001A	0.2% - DC 262
	Power Sum	0.001kW	0.5%
	Power 1	0.001kW	0.5%
	Power 2	0.001kW	0.5%
	Voltage Ripple Factor	0.001%	N/A
	Current Ripple Factor 1	0.001%	N/A
	Current Ripple Factor 2	0.001%	N/A

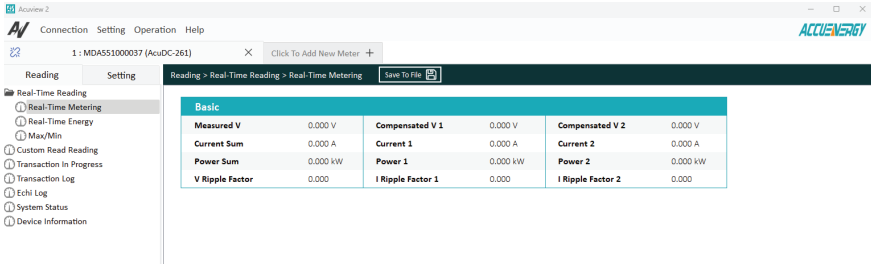


Figure 6-9 Accessing Real-Time Metering Data via Acuview 2

6.2.2 Demand

NOTE

Only supported on the AcuDC-262

Device Tab > Reading > Real-Time Reading > Real-Time Metering

AcuDC-262 demand measurements can be viewed from the Acuview 2. A full summary of these demand parameters is listed in the following table.

Table 6-2 AcuDC-262 Demand Measurements

Parameter Type	Parameter Name	Resolution	Accuracy
Demand	Demand Current Sum	0.001A	0.2%
	Demand Current 1	0.001A	0.2%
	Demand Current 2	0.001A	0.2%
	Demand Power Sum	0.001kw	0.5%
	Demand Power 1	0.001kw	0.5%
	Demand Power 2	0.001kw	0.5%

Clear Demand Data

Use Clear Demand button to remove all demand data from the AcuDC-262 Series.

ALERT

All demand data will be permanently removed from the AcuDC-262 Series DC meter.

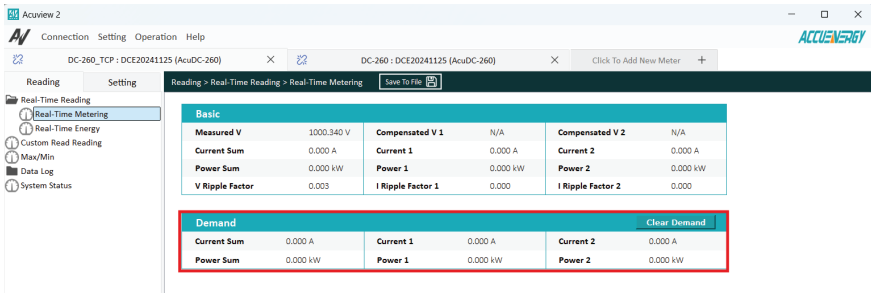


Figure 6-10 AcuDC-262 Demand Readings

6.2.3 Energy and Charge

Device Tab > Reading > Real-Time Reading > Real-Time Energy

AcuDC-262 measures both energy and electrical charge, providing import, export, net, and total values for each respective channel and its sum, enabling comprehensive monitoring of DC Power flow and cumulative current. A full summary of these energy and charge parameters is listed in the following table.

Table 6-3 AcuDC-262 Energy and Charge Measurements

Parameter Type	Parameter Name	Resolution	Accuracy
Energy	Import Energy 1	0.0001kWh	0.5%
	Import Energy 2	0.0001kWh	0.5%
	Import Energy Sum	0.0001kWh	0.5%
	Export Energy 1	0.0001kWh	0.5%
	Export Energy 2	0.0001kWh	0.5%
	Export Energy Sum	0.0001kWh	0.5%
	Net Energy 1	0.0001kWh	0.5%
	Net Energy 2	0.0001kWh	0.5%
	Net Energy Sum	0.0001kWh	0.5%
	Total Energy 1	0.0001kWh	0.5%
	Total Energy 2	0.0001kWh	0.5%
	Total Energy Sum	0.0001kWh	0.5%
Charge	Import Charge 1	0.0001Ah	0.5%
	Import Charge 2	0.0001Ah	0.5%
	Import Charge Sum	0.0001Ah	0.5%
	Export Charge 1	0.0001Ah	0.5%
	Export Charge 2	0.0001Ah	0.5%
	Export Charge Sum	0.0001Ah	0.5%
	Net Charge 1	0.0001Ah	0.5%
	Net Charge 2	0.0001Ah	0.5%
	Net Charge Sum	0.0001Ah	0.5%
	Total Charge 1	0.0001Ah	0.5%
	Total Charge 2	0.0001Ah	0.5%
	Total Charge Sum	0.0001Ah	0.5%

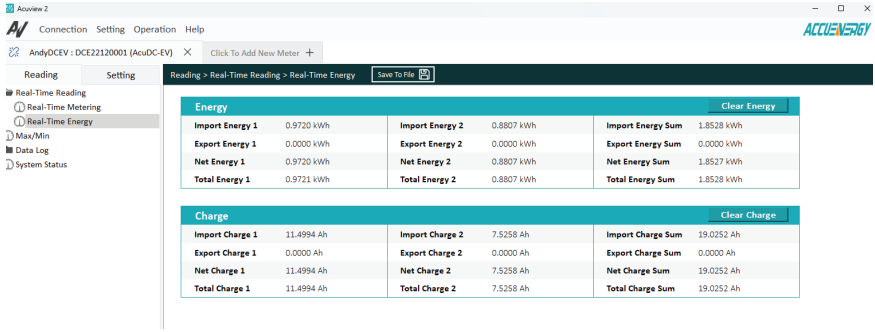


Figure 6-11 AcuDC-262 Real-Time Energy Readings

Reset Energy and Charge Readings

To clear the readings to zero, click on the Clear Energy and Clear Charge buttons to reset the respective readings to zero.

> **NOTE** Clearing Energy and Charge parameters requires administrative permission. A prompt will appear to enter a four-digit passcode.

6.2.4 Max/Min

Device Tab > Real-Time Reading > Max/Min

AcuDC-262 logs maximum and minimum value statistics for all real time parameters along with timestamps of when they occurred. All data are stored in non-volatile memory, so all statistical information is preserved when the AcuDC-262 loses power or is powered off.

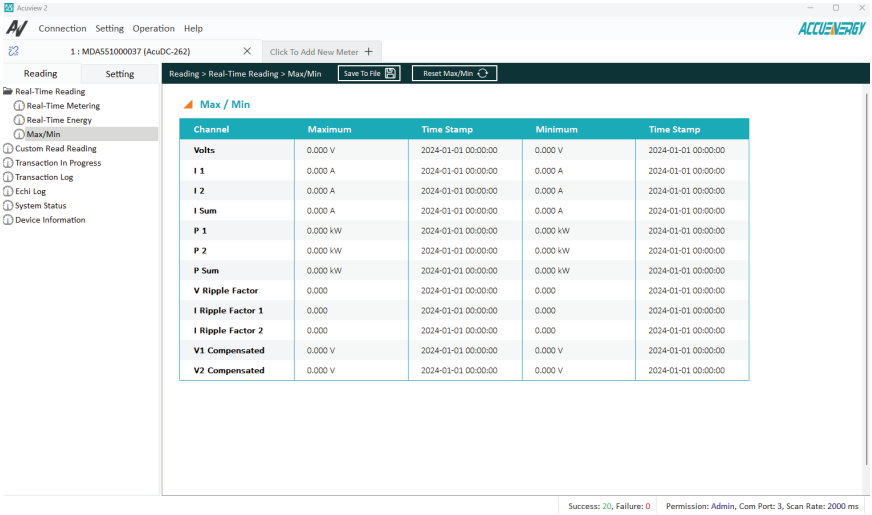


Figure 6-12 AcuDC-262 Max and Min Readings

Reset Max/Min Readings

The **Reset Max/Min** button updates both minimum and maximum stored values with the latest real-time, instantaneous readings.

6.3 Custom Read

Device Tab > Setting > Custom Read

The **Custom Read** function allows users to select specific parameters for monitoring and retrieval. Users can pull the values of chosen parameters either via Modbus communication or view real-time readings directly in Acuview 2.

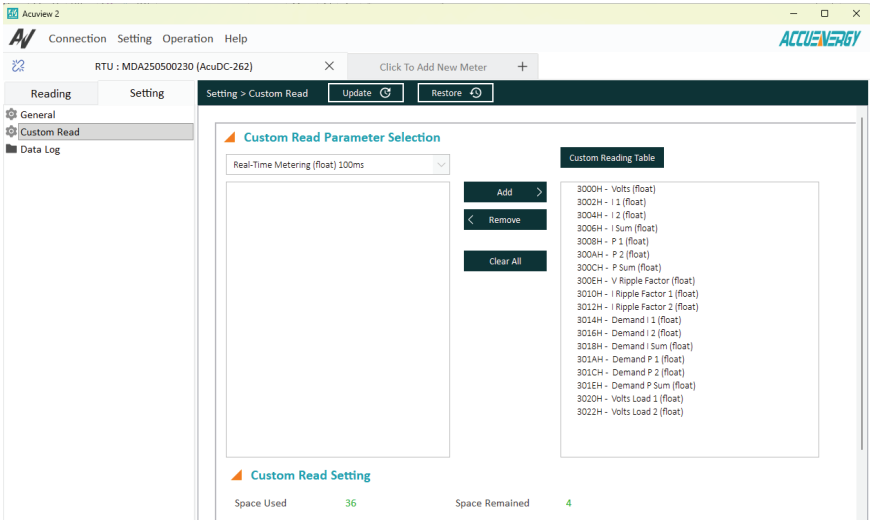


Figure 6-13 AcuDC-262 Custom Read Parameter Selection

Add, Remove and Clear Custom Read Parameters

1. To add custom parameters, select the parameter type from the drop-down menu.
2. Next, select one or more items from the left box. Click the **Add** button.
3. To remove parameters, select one or more items from the right box. Click the **Remove** button.
4. The **Clear All** button will remove all parameters from the right box.
5. Click on the **Update** button

Access Custom Read Reading Page

Device Tab > Reading > Custom Read Reading

To access and view the custom parameter readings, click on the Reading menu tab. Next, click Custom Read Reading.

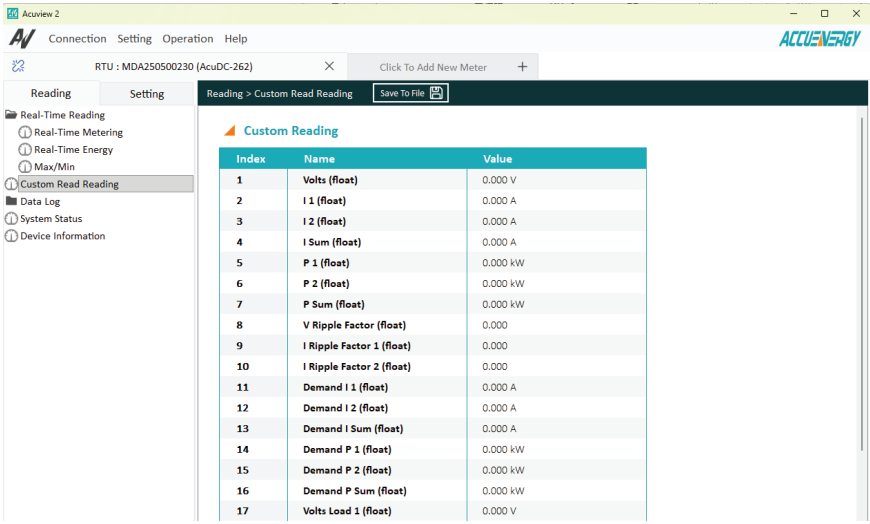


Figure 6-14 AcuDC-262 Custom Read Reading

6.4 Meter Settings

The **General Settings** can be configured from the AcuDC-262 screen, Modbus registers, and Acuview 2.

To apply any changes made to the AcuDC-262 settings, users must click the **Update** button at the top of the panel.

6.4.1 IP Settings

Device Tab > Setting > General

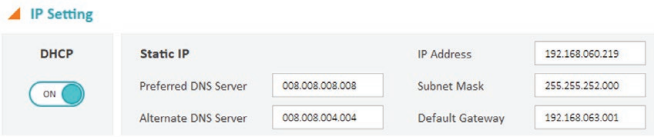


Figure 6-15 AcuDC-262 IP Settings

Parameters	Description
DHCP	Enabling DHCP allows the IP, Mask, and Gateway addresses will be automatically assigned. Disabling DHCP allows the user to manually configure the IP address.
Preferred DNS Server	Enter the IP address as the primary DNS server. This can also be configured from the meter screen (DNS1).
Alternate DNS Server	Enter the IP Address as a backup DNS server. This can also be configured from the meter screen (DNS2).
IP Address	Enter the IP address of the network. When DHCP is ON, the IP address will be configured automatically.
Subnet Mask	Enter the subnet mask. This can also be configured from the meter screen.
Default Gateway	Enter the gateway IP address. This can also be configured from the meter screen.

6.4.2 Modbus Settings

Device Tab > Setting > General

The **Modbus Settings** section allows the user to enable and configure the Modbus RTU and Modbus TCP settings.



Figure 6-16 AcuDC-262 Modbus Settings

Parameters	Description
Baud Rate	The communication speed measured in bits per second. The default value is 19200, with additional options: 2400, 4800, 9600, 38400, 57600, 76800, or 115200.
Parity	The communication parity options are None1, None2, Odd, and Even. By default setting is None1, indicating no parity and 1 stop bit.
Port Number	Enter the Modbus port number with a range from 1 to 65,534. By default, the port number is 502.
Slave Address	Enter a unique number ID for the Modbus Slave device, with the default value being 1. The allowable range is from 1 to 247.

ALERT

A factory reset will return the baud rate to 19200, and its protocol will be reset to Modbus. The parity channel will be set to NONE1 and the default slave ID address to 1.

6.4.3 PT and CT Ratios Settings

Device Tab > Setting > General

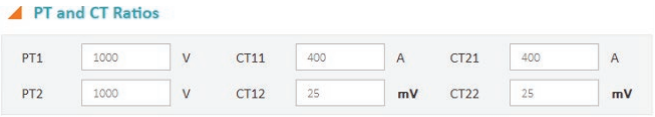


Figure 6-17 AcuDC-262 PT and CT Configuration

Parameters	Description
PT1	Configures the primary voltage transformer ratio.
PT2	Configures the secondary voltage transformer ratio.
CT11	Configures the primary current of the current transformer or shunt ratio for the first measurement channel.
CT12	Configures the secondary output of the current transformer or shunt ratio for the first measurement channel.
CT21	Configures the primary current of the current transformer or shunt ratio for the second measurement channel.
CT22	Configures the secondary output of the current transformer or shunt ratio for the second measurement channel.

6.4.4 Real-Time Reading Settings

Device Tab > Setting > General



Figure 6-18 AcuDC-262 Real-Time Reading Configuration

Parameters	Description
Secondary	Raw measurements at the meter inputs.
Primary	Scaled measurements that represent the actual system values using the CT/PT ratios.

6.4.5 Demand Settings

Device Tab > Setting > General

NOTE Only supported on the AcuDC-262

The **Demand Settings** determines how the meter calculates demand values.

Sliding window and fixed window are two different ways to calculate demand. The sliding window method requires two parameters, the demand window time and the demand update period. For example, if the demand window time is set to 15-minutes and the demand update period is set to 1-minute, the meter will calculate the average demand for the past 15-minutes and update the demand value every 1-minute.

NOTE Demand update period must be set to less than or equal to the demand window time.

The fixed window method only requires the demand update time. The meter divides the total time into fixed, non-overlapping intervals based on the demand update time, and average demand will be calculated within those intervals independently.

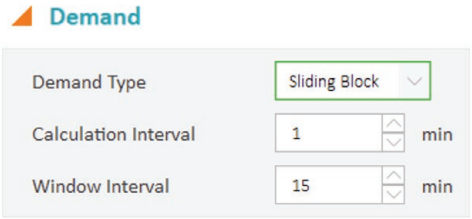


Figure 6-19 AcuDC-262 Demand Settings

Fixed Window Demand: The demand is calculated by selecting a window interval between 1 and 30 minutes. The AcuDC-262 will calculate and update the demand values at the end of each window interval.

$$Demand_{fix} = \frac{\sum_{t=0}^{window} P_{avg}(t)}{Window\ Interval}$$

Sliding Window Demand: The demand is calculated by selecting a window interval between 1 and 30 minutes. The AcuDC-262 will average the power within this period and the demand value is updated every calculation interval.

$$Demand_{slid}(n) = \frac{\sum_{t=n}^{n+window} P_{avg}(t)}{Window\ Interval}$$

$$Demand_{slid}(n+1) = \frac{\sum_{t=(n+1)}^{(n+1)+window} P_{avg}(t)}{Window\ Interval}$$

Window Interval: The window size used in the demand calculation method. The default is 15 minutes, and the range is from 1 to 30 minutes.

Calculation Interval: The demand update interval. The default is 1 minute, and ranges from 1 to 30 minutes.

6.4.6 Energy Reading Settings

Device Tab > Setting > General

The AcuDC-262 allows users to configure energy readings for accurate measurement and reporting.

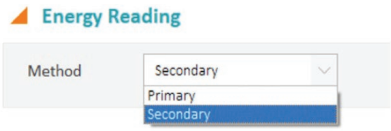


Figure 6-20 AcuDC-262 Energy Reading Settings

Primary: AcuDC-262 will accumulate energy based on the primary usage.

Secondary: AcuDC-262 will use the secondary values for the energy accumulation.

AcuDC-262 energy is calculated with the following equation.

$$E = V_{DC} \times I_{DC} \times \Delta_t$$

Where V_{DC} refers to DC voltage, I_{DC} refers to DC current, Δ_t refers to the load time duration.

6.4.7 Energy Pulse Settings

Device Tab > Setting > General

The **Energy Pulse** section of the AcuDC-262 is used to monitor and output pulse signals related

to energy consumption or generation using LED pulses. Energy pulse is an electrical signal sent from the meter to represent a fixed amount of energy consumed. The more energy consumed, the more pulses will be sent.

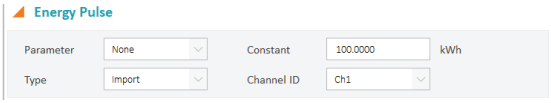


Figure 6-21 AcuDC-262 Energy Pulse Settings

Parameters	Description
Parameters	None: No pulse output. Energy: Outputs LED pulse signals related to total energy consumption. Charge: Outputs LED pulse signals related to electrical charge consumption.
Pulse Constant	Defines the pulse constant, in pulses per kWh, used to convert energy into LED pulse signals.
Type	Import: Represents energy imported from the grid. Export: Represents energy exported to the grid. Net: Net energy (import minus export). Total: Total energy (import plus export).
Channel ID	Specifies the channel for LED pulse output: Ch1: Channel 1. Ch2: Channel 2. Sum: The sum of all channels.

6.4.8 Security Settings

Device Tab > Setting > General

The **Security Settings** allows for the password to be updated. A password is needed for certain configuration settings.

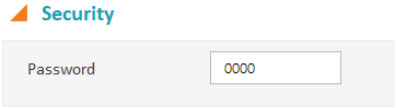


Figure 6-22 AcuDC-262 Password Settings

To access the AcuDC-262 settings on screen, the user must enter a four-digit password. By default, the meter password is 0000. This password can be changed on Acuview 2.

6.4.9 Cable Loss Compensation Settings

Device Tab > Setting > General

Cable resistance can lead to inaccuracies in energy measurements, as a portion of the energy will be dissipated as heat. For billing applications such as EV charging stations, it is important to ensure the customer is only billed for the amount that is delivered. The AcuDC-262 compensates for cable losses using its resistance, ensuring accurate and reliable measurements.



Figure 6-23 AcuDC-262 Cable Loss Compensation Settings

Parameters	Description
Cable 1 Resistance	Enter the total resistance of cable 1. Ranges from 0Ω to 999.9999Ω.
Cable 2 Resistance	Enter the total resistance of cable 2. Ranges from 0Ω to 999.9999Ω.

6.4.10 Other Settings

Device Tab > Setting > General.

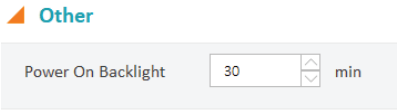


Figure 6-24 AcuDC-262 Power On Backlight Settings

Parameters	Description
Backlight	Default setting is 30 minutes, adjustable from 0 to 120 minutes. AcuDC-262 Backlight will turn off post duration. When the value is set to 0, the backlight will remain on indefinitely.

6.5 Data Logging

The AcuDC-262 includes a data logging feature where data is stored onto its built-in 16MB internal memory. Users can read and pull the timestamped data from memory to monitor the exact time each record was logged.

6.5.1 Data Log Setting

Device Tab > Setting > Data Log > Data Log 1 - 3

The AcuDC-262 includes four data logs where each logger can be configured individually and independently. This allows each data log to monitor different types of parameters, where the users can program up to 1,147 parameters per log for data Log 1, 2, and 3, and up to 38 parameters per log for data log 4.

Users can select the data logging parameters on Acuview 2.

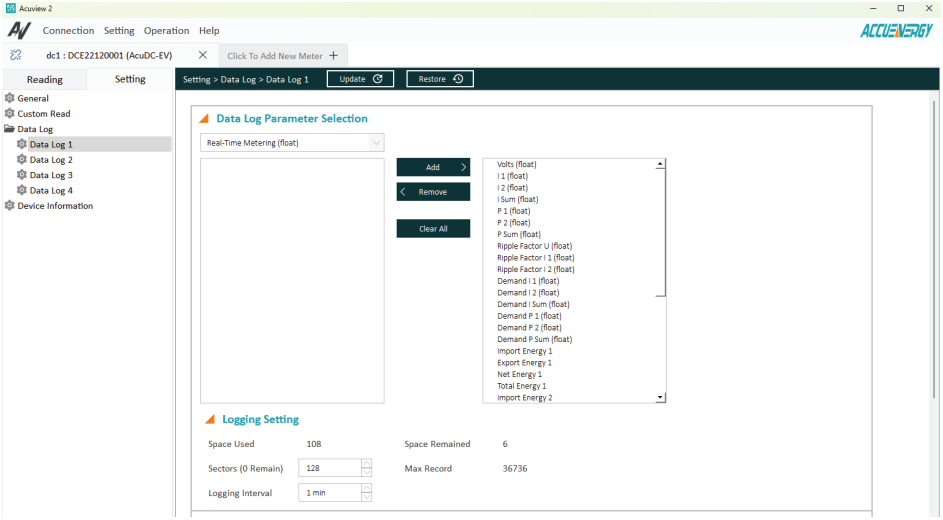


Figure 6-25a AcuDC-262 The Data Log 1 Settings

Adding Parameters to Data Log

1. To add parameters, first select the type of parameters from the drop-down menu.
2. Next, select one or more items from the left box. Click the **Add** button.
3. To remove parameters, select one or more items from the right box. Click the **Remove** button.
4. The **Clear All** button will remove all parameters from the right box.
5. Click on the **Update** button

> **ALERT** Updating the data log configuration will cause the existing data logs to be cleared.

A full summary of data log parameters is listed in the following tables.

Table 6-4 AcuDC-262 Data Log Parameters (Data Log 1 ,2 and 3)

Parameter Type	Data Type	Parameter Name	R/W
Real-Time Metering	Float 32 Int 16	V Measured	R
		Current 1	
		Current 2	
		Current Sum	
		Power 1	
		Power 2	
		Power Sum	
		Voltage Ripple Factor	
		Current Ripple Factor 1	
		Current Ripple Factor 2	
		Demand Current 1	
		Demand Current 2	
		Demand Current Sum	
		Demand Power 1	
		Demand Power 2	
		Demand Power Sum	
Energy	Double 64	Import Energy 1	
		Export Energy 1	
		Net Energy 1	
		Total Energy 1	
		Import Energy 2	
		Export Energy 2	
		Net Energy 2	
		Total Energy 2	
		Import Energy Sum	
		Export Energy Sum	
		Net Energy Sum	
		Total Energy Sum	
		Import Charge 1	
		Export Charge 1	
		Net Charge 1	
		Total Charge 1	
		Import Charge 2	

Parameter Type	Data Type	Parameter Name	R/W
Energy	Double 64	Export Charge 2	R
		Net Charge 2	
		Total Charge 2	
		Import Charge Sum	
		Export Charge Sum	
		Net Charge Sum	
		Total Charge Sum	

Table 6-5 AcuDC-262 Data Log Parameters (Data Log 4)

Parameter Type	Data Type	Parameter Name	R/W
Real-Time Metering	Float 32	V Measured	R
		Current 1	
		Current 2	
		Current Sum	
		Power 1	
		Power 2	
		Power Sum	
		Voltage Ripple Factor	
		Current Ripple Factor 1	
		Current Ripple Factor 2	

Data Log Setting and Memory Usage

As parameters are added to each individual data log, users can monitor space allocation under **Logging Setting.** Data Logs 1, 2, and 3 can accommodate up to 228 bytes of data, while Data Log 4 can accommodate 76 bytes of data. Each parameter uses 2 to 4 bytes of memory.

The maximum number of parameters that each data log can record depends on the sector percentage allocated. A higher sector percentage will result in more records being available to store in the data log.

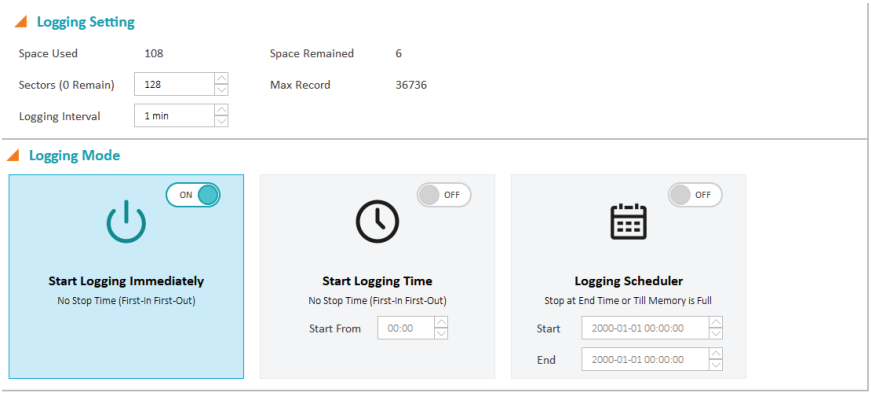


Figure 6-25b AcuDC-262 The Data Log 1 Logging Mode

Parameters	Description
Space Used	Number of sectors in use by parameters.
Space Remained	Number of sectors still available for allocation.
Sectors	Sets the sector value to an appropriate value for individual data logs, ranging from 0 to 128. Setting the value to 128 uses the entire memory capacity of the AcuDC-262.
Max Record	Maximum of records that can be stored in the data log.
Logging Interval	Set the polling frequency of the data logger.

NOTE The combined total sector number for Data Log 1, Data Log 2, and Data Log 3 must not exceed 128.

Logging Mode

The AcuDC-262 offers three different data log scheduling modes.

Parameters	Description
Start Logging Immediately	When enabled, records begin logging without delay with no stop time.
Start Logging Time	Data logging begins after the set time with no stop time.
Logging Scheduler	Set the time frame when the data logger will start and end. If the memory is full before the end time, the data logger will stop storing records.

NOTE Logging mode with no stop time, the oldest stored records are automatically overwritten by the newest record.

6.5.2 Retrieving Data Log

Device Tab > Reading > Data Log > Data Log 1 - 3 Reading

Data logs can be retrieved from the Acuview 2 or by Modbus registers (refer to Chapter 5).

From the Acuview 2, under the Readings menu tab, click Data Log to expand the menu options. Users will have a choice to select between Data Log 1, 2, 3, and 4 Reading.

Select the data log reading to access the page and be presented with an overview of the data log. Below is an explanation of each parameter.

Parameters	Description
Max Records	Displays the maximum number of records configured for the data log.
Used Records	Indicates the number of individual records stored in memory.
Records Size	Indicates the amount of memory to store a record.
Window Status	Indicates the status of the data log.
First Record Time Stamp	Shows the date and time of the first data log record.
Last Record Time Stamp	Shows the date and time of the final data log record.

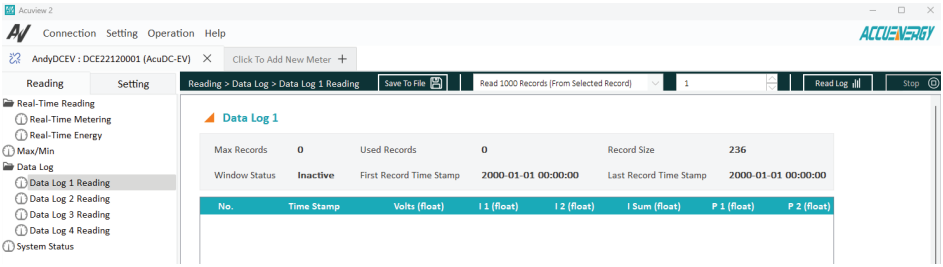


Figure 6-26 AcuDC-262 The Data Log Reading Window

Retrieving Log Data

To retrieve the data log records, first configure what records to read.

Parameters	Description
Read Order	Users can select the number of records or a specific range of records they wish to view from the drop-down menu. The following options are available: • Read the newest 50 records • Read 1000 records (From Selected Record) • Read 64000 records (From Selected Record) • Read 1000 records (From Selected Time) • Read 64000 records (From Selected Time)

Parameters	Description
Read Log	Once the Read Order has been configured, click on Read Log Read Log button to retrieve the data. The data may take some time to populate depending on the number of records read. Figure 6-27 shows the data retrieval panel.
Stop	Click to Stop Stop button to stop the data retrieval process.
Save to File	Save the data log as a .CSV file.

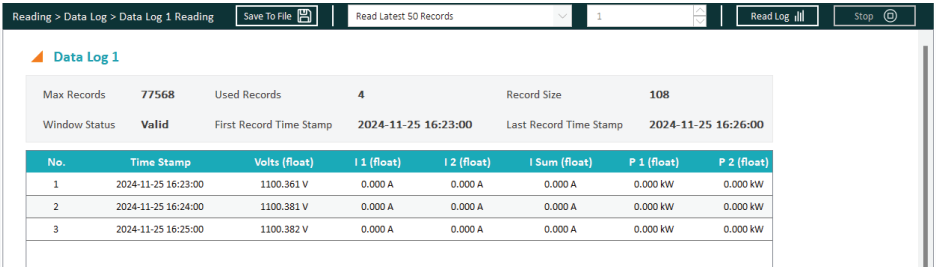


Figure 6-27 AcuDC-262 Data Log Retrieval Panel

6.6 Time & Date Configuration

Device Tab > Reading > System Status

The time and date of AcuDC-262 can be configured on Acuview 2 or by writing to the Modbus registers, see Chapter 5 for more details.

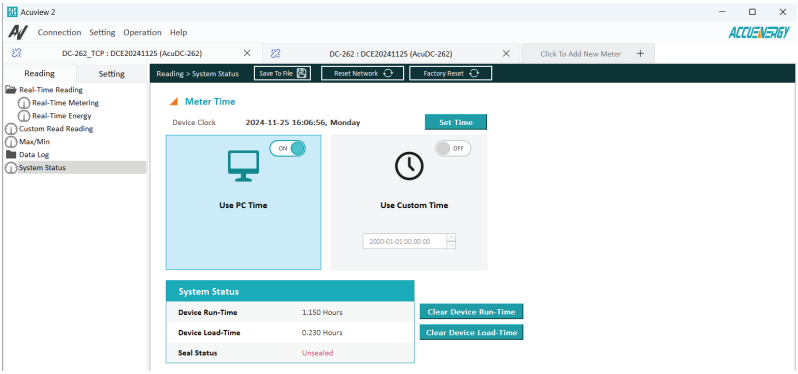


Figure 6-28 AcuDC-262 Time Configuration

Set Date and Time

The date and time for the AcuDC-262 can be based on the computer's internal clock the Acuview 2 is installed on or by using a custom time entered by the user.

Modes	Description
Use PC Time	Synchronize it with the PC's internal system clock.
Use Custom Time	Set the time on AcuDC-262 manually.

1. Enable Use PC Time or Use Custom Time.
2. If Use Custom Time is enabled, enter the custom date and time in the field.
3. Once an option is selected, click the **Set Time** Set Time button to confirm the changes.

ALERT

The AcuDC-262 will retain its time settings when powered off. However, if it remains off for more than three days, it will revert to default time.

Clear Device Run-Time and Load-Time

The AcuDC-262 allows the device to reset its counters to zero.

Modes	Description
Clear Device Run-Time	Resets the device run-time back to zero.
Clear Device Load-Time	Resets the device load-time back to zero.

NOTE

The device run-time and load-time cannot be reset if the device is sealed.

6.7 Device Information

Device Tab > Reading > Device Information

The AcuDC-262 device information page can be viewed on the Acuview 2.

Device Information includes:

- Serial Number
- Hardware Version
- Bootloader Version
- Firmware Version
- Function Model

- Voltage Input
- Current Input
- Power Supply
- Mac Address
- Release Date
- External CT Type
- Certification Type

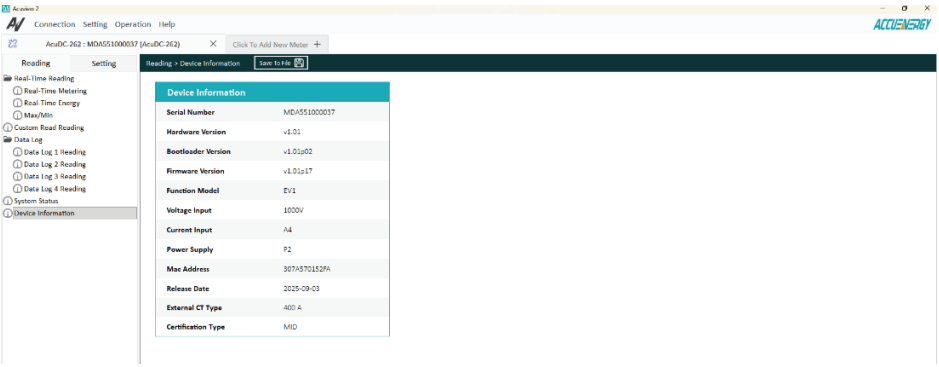


Figure 6-29 AcuDC-262 Device Information Page

6.8 Firmware Updates

The AcuDC-262 Firmware Update section describes the procedure for updating the firmware through the Acuview 2 software application. It is recommended to keep the firmware current to receive the latest features, security updates and for improved performance.

Manual Firmware Update

1. Download the latest version of the AcuDC-262 firmware from www.mod-tronic.com support/product-support-documents/.
2. From the main menu, click the **Operation** menu and select **Firmware Update.**

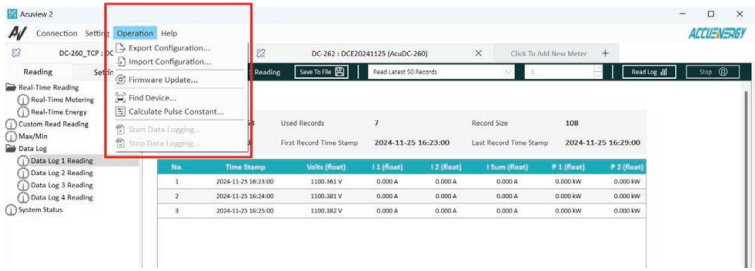


Figure 6-30 Firmware Update Screen

3. Click on the **Select Firmware File** button to open the file folder window. Browse to locate the downloaded firmware file identified by the "MFEA" extension.
4. Acuview 2 can scan and display all active serial ports and TCP connections. Toggle Scan Mode on to scan serial ports.

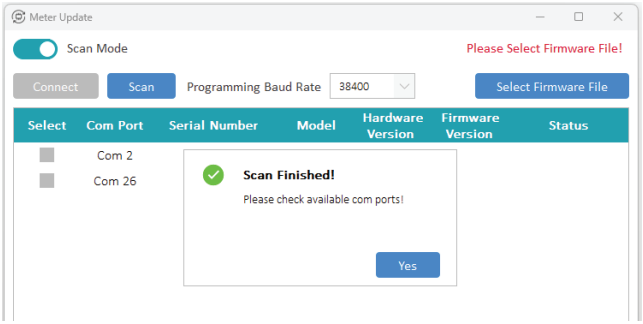


Figure 6-31 Scan Mode Screen

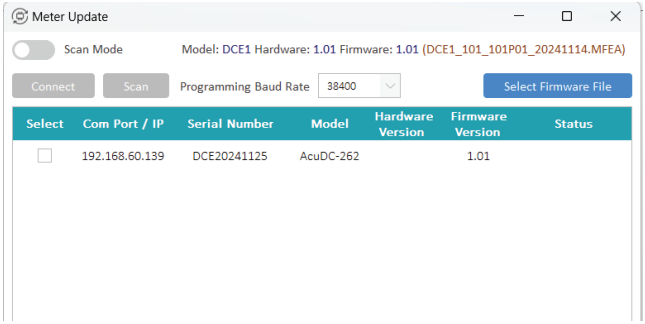


Figure 6-32 TCP Scan Mode Screen

5. Select the AcuDC-262, then click the **Connect** button.
6. A **Connect Setting** panel will appear to configure the parameters according to the RS485 settings of AcuDC-262.

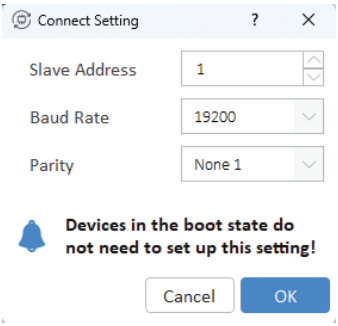


Figure 6-33 Connection Setting Screen

Parameter	Description
Slave Address	Enter the Slave ID of the meter to be updated.
Baud Rate	Select the transmission speed.
Parity	Enable error-checking with choice of Odd or Even. If no error-checking is needed, choose None.

7. If the connection is successfully established, the upgrade will start automatically.

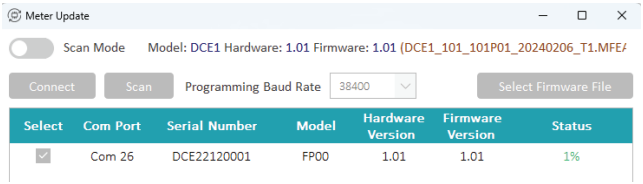


Figure 6-34 Connection Setting Screen

8. After the upgrade is complete, AcuDC-262 will restart automatically.

ALERT

Do not disconnect the AcuDC-262 from the computer during the upgrade process. If the upgrade fails, restart the AcuDC-262 and try the firmware update again.

For further assistance, please contact Mod-Tronic Technical Support.

Chapter 7: Modbus Communication

This chapter describes the Modbus register mapping for the AcuDC 260 Series and how these registers can be accessed by other devices on the network.

7.1 Modbus Protocol Introduction

Modbus RTU is the communication protocol used in AcuDC 260 Series. The protocol defines the data format, frame structure, and error check methods. It operates in a half-duplex, query-and-response mode with a single master device communicating with multiple slave devices on the network.

Transmission Mode

The mode of transmission defines the data frame structure and rules used for data exchange. The AcuDC 260 Series uses a transmission mode compatible with Modbus RTU, as outlined in the table below.

Framing

Table 7-1 Data Framing

Address Field	Function Field	Data Field	Error Check Field
8-Bits	8-Bits	Nx8-Bits	16-Bits
Coding System		8-Bit Binary	
Start Bit		1	
Data Bits		8	
Parity		None, Odd, Even	
Stop Bit		1 or 2	
Error Checking		CRC Check	

Address Field

The message frame contains an 8-bit address field to allow a master device to identify slave devices during the communication process. Valid slave device addresses are within the decimal range of 1 to 247. When communication is initiated between a master and slave device, the master sends a unique slave address placed in the address field of the message. The slave will send a response by placing its own address in the address field to allow the master to identify the corresponding slave device.

Function Field

The function code field of a message frame contains 8 bits. Valid codes are within the decimal range of 1 to 255. When a message is sent from a master to a slave device, the function code field specifies the type of action to be performed by the slave device.

Table 5-2 Function Code Transmission

Code	Meaning	Action
03	Read Data	Obtain current binary value from one or more registers.
16	Press Multiple-Register	Place specific binary values into a series of consecutive multiple registers.

Data Field

The data field is constructed using sets of two hexadecimal digits with a range of 00 to FF. The data field of messages sent from a master to slave devices contain additional information which the slave must use to take the action defined by the function code. This can include items such as register addresses, the quantity of items to be handled, and the count of actual data bytes presented in the field. For example, if the master writes to a group of registers in the slave (function code 10 hexadecimal), the data field specifies the starting register, how many registers to write, the count of data bytes to follow in the data field, and the data to be written into the registers.

If no error occurs, the data field of a response from a slave to a master device contains the data requested. If an error occurs, the field contains an exception code that the master application uses to determine the next action. The data field can be nonexistent (length is zero) in certain types of messages.

Error Check Field

Every message incorporates an error-checking field based on the cyclical redundancy check (CRC) method. The CRC field checks the contents of the entire message. It is applied regardless of any parity check method that is used for the individual characters of the message. The CRC field is two bytes long, containing a 16-bit binary value. The CRC value is calculated by the transmitting device and is appended to the message. The receiving device recalculates the CRC value during the reception of the message and compares it to the calculated value it received in the CRC field. If the two values are not equal, an error will be reported.

The CRC process can follow these steps:

1. The CRC calculation begins by initializing a 16-bit register to all 1s. The CRC is then calculated by sequentially applying every 8-bit of the message to the current register, ignoring the start, stop, and the parity bit.
2. The message will be processed one byte (8-bits) at a time, and every byte will perform an exclusive OR (XOR) operation with the current 16-bit register.
3. The result is then shifted towards the least significant bit (LSB), and a 0 will be filled into the most significant bit (MSB) position.
4. If the LSB equals to 1, the 16-bit register will perform an XOR operation with a predefined value. If the LSB equals to 0, no actions will be taken.
5. This shifting and conditional XOR process will be repeated eight times for each byte (8-bit). After the eighth shift, the next byte will perform an XOR operation with the 16-bit register's current value, and the above process will be repeated for another eight times.
6. Every byte in the message will be processed in the same manner. Once all bytes in the massage are processed, the high-byte and the low-byte in the 16-bit register will be swapped, and the remaining value is the CRC score.
7. When the CRC is appended to the message, the low-byte is appended first, followed by the high-byte.

7.2 Communication Format

Table 7-3 Explanation of Frame

Address	Function	Data Start Register HI	Data Start Register LO	Number of Data Start Registers HI	Number of Data Start Registers LO	CRC 16 HI	CRC 16 LO
06H	03H	00H	00H	00H	21H	84H	65H

7.2.1 Read Data (Function Code 03H)

Function code 03H is used in Modbus to read the contents of a contiguous block of holding registers in AcuDC 260 Series.

Query

This function allows the master to obtain the measurement results from the AcuDC 260 Series. Table 5-4 is an example of reading the measured data.

Example: Reading three measured data (V, I1, I2) AcuDC 260.

The data address of V includes 3000H and 3001H. The data address of I1 includes 3002H and 3003H. The data address of I2 includes 3004H and 3005H.

Table 7-4 Data Request Table

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7~32
Address Field	Function Field	Data Start Register HI	Data Start Register LO	Number of Registers HI	Number of Registers LO	CRC Error Check Field
07H	03H	30H	00H	00H	06H	00H

Response

The AcuDC 260 response includes the meter address, function code, quantity of data bytes, data, and error checking.

Table 7-5 Data Response Table

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	Byte8
Address Field	Function Field	Byte Count	Data Field 1 HI	Data Field 1 LO	Data Field 2 HI	Data Field 2 LO	Data Field 3 HI
07H	03H	00CH	42H	EFH	F5H	93H	40H

Byte9	Byte10	Byte11	Byte12	Byte13	Byte14	Byte15	Byte16~32
20H	0AH	4BH	40H	20H	09H	57H	00H

(V=42EFF593H(119.98 V), I1=40200A4BH(2.50063A), I2= 40200957 H(2.50057A)).

7.2.2 Preset/Reset Multi-Register (Function Code 10H)

Function code 10H is used in MODBUS to write a block of continuous registers in the AcuDC 260, such as system parameters setting and so on.

Example: Change the CT11(address: 1014H), CT12(1015H) Value to 50(0032H) and 75(0048H) respectively.

Query

Function code 10H allows the user to modify the contents of a multi-register. Some registers of AcuDC 260 Series can have their contents changed by this message.

Table 7-6 Data Request Table

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6
FAH	10H	10H	14H	00H	02H

Byte7	Byte8	Byte9	Byte10	Byte11	Byte12~32
04H	00H	32H	00H	4BH	00H

Response

The normal response to a preset multi-register request includes the AcuDC 260 Series address, function code, data start register, the number of registers, and error checking.

Table 7-7 Data Response Table

Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7~32
FAH	10H	10H	14H	00H	02H	00H

7.3 Data Address Table and Application Details

There are several rules to follow in using the AcuDC-260 Series.

7.3.1 Data Type

- "word" represents a 16-bit unsigned integer, using one data address and occupying 2 bytes of memory. Its range spans from 0 to 65535.
- "int16" represents a 16-bit integer, using one data address and occupying 2 bytes of memory. Its range spans from -32768 to 32767.
- "int32" represents a 32-bit integer, using one data address and occupying 4 bytes of memory. Its range spans from -2147483648 to 2147483647.
- "dword" represents a 32-bit unsigned integer, using two data addresses and occupying 4 bytes of memory. This is organized with the high word at the front and the low word at the end. Its range spans from 0 to 4294967295. The value is calculated as Rx = high word*65536 + low word.
- "INT" represents a 96-bit unsigned integer, using six data addresses and occupying 12 bytes of memory.
- "float32" represents a 32-bit single value, using two data addresses and occupying 4 bytes of memory. Its range spans from -1.175494E-38 to 3.402823E+38.
- "double" represents a 64-bit single value, using four data addresses and occupying 8 bytes of memory. Its range span from $-1.7 \times 10^{(308)}$ to $+1.7 \times 10^{(308)}$.

7.3.2 System Parameter Setting

System parameters determine how the AcuDC-260 Series works.

Function code: 03H for reading, 10H for writing.

Data type: word

Table 7-8a AcuDC-261 System Parameters

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1000	4096	Meter Password	0 - 9999	0	word	R/W
0x1001	4097	RS485 Bauds Rate	2400 - 115200	19200	word	R/W
0x1002	4098	RS485 Parity	0: Even 1: Odd 2: None2 3: None1	0	word	R/W
0x1003	4099	DHCP Enable	0: Manual 1: DHCP	0	word	R/W
0x1004	4100	IP Address 1st Byte (High) IP Address 2nd Byte (Low)	0~255	192.168.1.254	word	R/W
0x1005	4101	IP Address 3rd Byte (High) IP Address 4th Byte (Low)	0~255		word	R/W
0x1006	4102	Subnet Mask 1st Byte (High) Subnet Mask 2nd Byte (Low)	0~255	255.255.255.0	word	R/W
0x1007	4103	Subnet Mask 3rd Byte (High) Subnet Mask 4th Byte (Low)	0~255		word	R/W
0x1008	4104	Gateway 1st Byte (High) Gateway 2nd Byte (Low)	0~255	192.168.1.1	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1009	4105	Gateway 3rd Byte (High) Gateway 4th Byte (Low)	0~255		word	R/W
0x100A	4106	DNS Primary Server 1st Byte (High) DNS Primary Server 2nd Byte (Low)	0~255	8.8.8.8	word	R/W
0x100B	4107	DNS Primary Server 3rd Byte (High) DNS Primary Server 4th Byte (Low)	0~255		word	R/W
0x100C	4108	DNS Secondary Server 1st Byte (High) DNS Secondary Server 2nd Byte (Low)	0~255	8.8.4.4	word	R/W
0x100D	4109	DNS Secondary Server 3rd Byte (High) DNS Secondary Server 4th Byte (Low)	0~255		word	R/W
0x100E	4110	Modbus Slave ID	1-247, used for both Modbus RTU and Modbus TCP	1	word	R/W
0x100F	4111	Modbus RTU Enable	0: Disable 1: Enable	1	word	R/W
0x1010	4112	Modbus TCP Enable	0: Disable 1: Enable	1	word	R/W
0x1011	4113	Modbus TCP Port	1-65534	502	word	R/W
0x1012	4114	PT1	Fixed as 1000 for Now	1000	word	R/W
0x1013	4115	PT2	Fixed as 1000 for Now		word	R/W
0x1014	4116	CT11	20 - 50000 A	50	word	R/W
0x1015	4117	CT12	0-100 (mV)	75	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1019	4121	Energy Pulse Parameter	0: None 1: Energy 2: Charge	0	word	R/W
0x101A	4122	Energy Pulse Type	0: EV_IMPORT, 1: EV_EXPORT, 2: EV_NET, // Imp - Exp 3: EV_TOTAL, // Imp + Exp	0	word	R/W
0x101B	4123	Energy Reading Type	0: Primary 1: Secondary	0	word	R/W
0x101C	4124	Basic Reading Type	0: Secondary 1: Primary	0	word	R/W
0x101E	4126	Clear Max/Min	0: None 1: Clearing	0	word	R/W
0x101F	4127	Clear Device Run Time	0: None 1: Clearing	0	word	R/W
0x1020	4128	Clear Energy	0: None 1: Clearing	0	word	R/W
0x1021	4129	Factory Reset	0: None 1: Resetting	0	word	R/W
0x1022	4130	Backlight Time	0 - 120	0	word	R/W
0x1023	4131	Seal Status	Sealed: 0x0A	0	word	R
0x1024	4132	Device Run Time (High 16 Bits)	0 - 9999	0	word	R
0x1025	4133	Device Run Time (Low 16 Bits)	0 - 9999	0	word	R
0x1026	4134	Clear Charge	0: None 1: Clearing	0	word	R/W
0x1027	4135	Network Reset	0: None 1: Resetting	0	word	R/W
0x1028	4136	CT21	20 - 50000 A	50	word	RW
0x1029	4137	CT22	0-100 (mV)	75	word	RW
0x102A	4138	Device Load Time (High 16 Bits)	0 ~ 9999999	0	word	R

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x102B	4139	Device Load Time (Low 16 Bits)	0 ~ 9999999	0	word	R
0x102C	4140	Clear Load Time	0: None 1: Clearing	0	word	R/W
0x102D	4141	Enable Cable Loss Compensation	0: Disable 1: Enable	0	word	R/W
0x102E	4142	Cable 1 Resistance (High 16 Bits)	0~9999999	0	word	R/W
0x102F	4143	Cable 1 Resistance (Low 16 Bits)	0~9999999	0	word	R/W
0x1030	4144	Cable 2 Resistance (High 16 Bits)	0 ~ 9999999	0	word	R/W
0x1031	4145	Cable 2 Resistance (Low 16 Bits)	0 ~ 9999999	0	word	R/W
0x1032	4146	Energy Pulse Constant	1 - 50000000 (0.0001 - 5000)	1000000 (100)	word	R/W
0x1034	4148	Pulse Channel ID	0: Ch1 1: Ch2 2: Sum		word	R/W
0x1035	4149	Clear Transaction Log	0: None 1: Clearing		uint16	R/W
0x1036	4150	Clear Eichlog	0: None 1: Clearing		uint16_t	R/W

Table 7-8b AcuDC-262 System Parameters

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1000	4096	Meter Password	0 - 9999	0	word	R/W
0x1001	4097	RS485 Bauds Rate	2400 - 115200	19200	word	R/W
0x1002	4098	RS485 Parity	0: Even 1: Odd 2: None2 3: None1	0	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1003	4099	DHCP Enable	0: Manual 1: DHCP	0	word	R/W
0x1004	4100	IP Address 1st Byte (High) IP Address 2nd Byte (Low)	0~255	192.168.1.254	word	R/W
0x1005	4101	IP Address 3rd Byte (High) IP Address 4th Byte (Low)	0~255		word	R/W
0x1006	4102	Subnet Mask 1st Byte (High) Subnet Mask 2nd Byte (Low)	0~255	255.255.255.0	word	R/W
0x1007	4103	Subnet Mask 3rd Byte (High) Subnet Mask 4th Byte (Low)	0~255		word	R/W
0x1008	4104	Gateway 1st Byte (High) Gateway 2nd Byte (Low)	0~255	192.168.1.1	word	R/W
0x1009	4105	Gateway 3rd Byte (High) Gateway 4th Byte (Low)	0~255		word	R/W
0x100A	4106	DNS Primary Server 1st Byte (High) DNS Primary Server 2nd Byte (Low)	0~255	8.8.8.8	word	R/W
0x100B	4107	DNS Primary Server 3rd Byte (High) DNS Primary Server 4th Byte (Low)	0~255		word	R/W
0x100C	4108	DNS Secondary Server 1st Byte (High) DNS Secondary Server 2nd Byte (Low)	0~255	8.8.4.4	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x100D	4109	DNS Secondary Server 3rd Byte (High) DNS Secondary Server 4th Byte (Low)	0~255		word	R/W
0x100E	4110	Modbus Slave ID	1-247, used for both Modbus RTU and Modbus TCP	1	word	R/W
0x100F	4111	Modbus RTU Enable	0: Disable 1: Enable	1	word	R/W
0x1010	4112	Modbus TCP Enable	0: Disable 1: Enable	1	word	R/W
0x1011	4113	Modbus TCP Port	1-65534	502	word	R/W
0X1012	4114	Fixed as 1000 for Now	1000		word	R/W
0X1013	4115	Fixed as 1000 for Now	0		word	R/W
0X1014	4116	Current1 Sensor Nominal Primary Input	20 - 50000 A	50	word	R/W
X01015	4117	Current1 Sensor Secondary Output Max of Type A1(0~100mv)	5-100 (mV)	75	word	R/W
0x1016	4118	Demand Calculation Method	0: Fixed Block 1: Sliding Block 2: Thermal 3: Rolling Block	1	word	R/W
0x1017	4119	Demand Window Time	1~30	15	word	R/W
0x1018	4120	Demand Update Period	1~30	1	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1019	4121	Energy Pulse Parameter	0: None 1: Import Energy 1 2: Export Energy 1 3: Import Energy 2 4: Export Energy 2 5: Import Energy Sum 6: Export Energy Sum	0	word	R/W
0x101A	4122	Energy Pulse Constant	1 - 60000	5000	word	R/W
0x101B	4123	Energy Reading Type	0: Primary 1: Secondary	0	word	R/W
0x101C	4124	Basic Reading Type	0: Secondary 1: Primary	0	word	R/W
0x101D	4125	Clear Demand	0: None 1: Clearing	0	word	R/W
0x101E	4126	Clear Max/Min	0: None 1: Clearing	0	word	R/W
0x101F	4127	Clear Device Run Time	0: None 1: Clearing	0	word	R/W
0x1020	4128	Clear Energy	0: None 1: Clearing	0	word	R/W
0x1021	4129	Factory Reset	0: None 1: Resetting	0	word	R/W
0x1022	4130	Backlight Time	0 - 120	0	word	R/W
0x1023	4131	Seal Status	Sealed: 0x0A	0	word	R
0x1024	4132	Device Run Time (High 16 Bits)	0 - 9999	0	word	R
0x1025	4133	Device Run Time (Low 16 Bits)	0 - 9999	0	word	R
0x1026	4134	Clear Charge	0: None 1: Clearing	0	word	R/W
0x1027	4135	Network Reset	0: None 1: Resetting	0	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1028	4136	Current2 Sensor Nominal Primary Input	20 - 50000 A	50	word	R/W
0x1029	4137	Current2 Sensor Secondary Output Max of Type A1(0~100mv)	5-100 (mV)	75	word	R/W
0x102A	4138	Device Load Time (High 16 Bits)	0 ~ 9999999		word	R
0x102B	4139	Device Load Time (Low 16 Bits)	0 ~ 9999999	0	word	R
0x102C	4140	Clear Load Time	0: None 1: Clearing	0	word	R/W
0x102D	4141	Enable Cable Loss Compensation	0: Disable 1: Enable	0	word	R/W
0x102E	4142	Cable 1 Resistance (High 16 Bits)	0 ~ 9999999	0	word	R/W
0x102F	4143	Cable 1 Resistance (Low 16 Bits)	0 ~ 9999999	0	word	R/W
0x1030	4144	Cable 2 Resistance (High 16 Bits)	0 ~ 9999999	0	word	R/W
0x1031	4145	Cable 2 Resistance (Low 16 Bits)	0 ~ 9999999	0	word	R/W
0x1032	4146	Energy pulse constant	1 - 50000000 (0.0001 - 5000)	1000000 (100)	word	R/W
0x1034	4148	Pulse Channel ID	0: Ch1 1: Ch2 2: Sum		word	R/W
0x1035	4149	Current1 Sensor Measurement Direction of type A2(4mA~20mA Hall sensor) and type A3(-5V to 5V hall sensor)	0x0000 - None 0x0001 - Unipolar 0x0002 - Mid-bias bipolar 0x0003 - true bipolar	0x0000	word	R/W

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x1036	4150	Current2 Sensor Measurement Direction of Type A2(4mA~20mA Hall Sensor) and Type A3(-5V to 5V Hall Sensor)	0x0000 - None 0x0001 - Unipolar 0x0002 - Mid-bias bipolar 0x0003 - True Bipolar	0x0000	word	R/W
0x1037	4151	Current1 Sensor Secondary Output Min of Type A3	(Reg Value) / 10	0	word	R/W
0x1038	4152	Current1 Sensor Secondary Output Max of Type A3	(Reg Value) / 10	50	word	R/W
0x1039	4153	Current2 Sensor Secondary Output Min of Type A3	(Reg Value) / 10	0	word	R/W
0x103A	4154	Current2 Sensor Secondary Output Max of Type A3	(Reg Value) / 10	50	word	R/W

7.3.3 System Info

The System Info register map is used to read firmware information.

Function code: 03H for reading, 10H for writing.

Data type: word

Table 7-9a AcuDC-261 System Status Parameters

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF000~0xF001	61440~61441	Firmware Version	In the Format like x.yz (e.g., 1.01)	Determined by Firmware.	N/A	R
0xF002~0xF003	61442~61443	Firmware Release Date	In the Format like YYMMDD (221228)	Determined by Firmware.	N/A	R

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF005~0xF005	61445~61445	Firmware patch number	ASCII, in Format of xy (01)	Determined by firmware	N/A	R
0xF010~0xF011	61456~61457	Bootloader Model Name	ASCII, in Format of XYZa (e.g. MDA0)	Determined by Bootloader		R
0xF012~0xF013	61458~61459	Bootloader Version	ASCII, in Format of x.yz (e.g. 1.01)	Determined by Bootloader		R
0xF014~0xF016	61460~61462	Bootloader Release Date	ASCII, in Format of YYMMDD (e.g. 241108)	Determined by Bootloader		R
0xF017~0xF017	61463~61463	Bootloader Patch Number	ASCII, in Format of xy (e.g. 01)	Determined by Bootloader		R
0xF040~0xF04F	61504~61519	Serial Number	In the Format like MDAYYMMabcde (e.g., MDA250500001)			RW
0xF050~0xF051	61520~61521	Hardware version	In the Format like x.yz (e.g., 1.01)	1.01		RW
0xF052~0xF052	61522~61522	Function Model Type	0: default: AcuDC-262 1: AcuDC-261 2: AcuDC-262	0		RW
0xF053~0xF053	61523~61523	Voltage Input Type	0: 1000V	0		RW
0xF054~0xF054	61524~61524	Current Input Type	0: A1 (Shunt) 1: A2 (0 to 20mA Hall Sensor) 2: A3 (-5V to 5V Hall Sensor) 3: A4 (External MID Shunt)	0		RW
0xF055~0xF055	61525~61525	Power Supply Type	1 for P2	1		RW
0xF056~0xF065	61526~61541	MAC address				RW
0xF066~0xF066	61542~61542	Certificate Type	0: None; 1: MID	0		RW
0xF067~0xF067	61543~61543	External Shunt Type	0: None; 400: 400A; 600: 600A; 2000: 2000A	0		RW
0xF068~0xF068	61544~61544	Hardware Patch Number	In the Format like xy (e.g., 00)	1		RW

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF069~0xF06D	61545~61549	Reserved				RW
0xF0B4~0xF0B4	61620~61620	Integrity Check Result	BIT0 (1- There is Boot Firmware Integrity Check Failure. 0 - There isn't) BIT1 (1- There is App Firmware Integrity Check Failure. 0 - There isn't) BIT2 (1- There is Product Integrity Check Failure. 0 - There isn't) BIT3 (1- There is ADC Calibration Integrity Check Failure. 0 - There isn't) BIT4 (1- There is Measure Configuration Integrity Check Failure. 0 - There isn't) BIT5 (1- There is Energy Data Integrity Check Failure. 0 - There isn't) BIT6 (1- There is Eichlog Data Integrity Check Failure. 0 - There isn't) BIT7 (1- There is Transaction Data Integrity Check Failure. 0 - There isn't) Other BITS - Reserved			RW
0xF0B5~0xF0B5	61621~61621	System Mode	0x0001 - Production Mode 0x0002 - Assembly Mode 0x0003 - Normal Mode Others - Reserved			RW

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF0B6~0xF0B6	61622~61622	Fatal Error Status	BIT0 (1- Data Integrity Failure Happened, 0 - No data Integrity Failure.) BIT1 (1- Log Storage is Exhausted, 0 - Log Storage is Not Exhausted.) BIT2 (1 - RTC Works Not Correctly, 0 - RTC Works Correctly) BIT3 (1 - ADC Works Not Correctly, 0 - ADC Works Correctly) BIT4 (1 - Storage Failure Occurred, 0 - No Storage Failure.) Other Bits - Reserved.			
0xF0B7~0xF0B7	61623~61623	Assembly Mode Enter Command	Write 0xAA55, Enter the Assembly Mode. Don't Response any Others Write Value. Self Clear.			
0xF0C0~0xF0ED	61632~61677	Public key	Public Key of .der Format, Totally 91 Bytes			

Table 7-9b AcuDC-262 System Status Parameters

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF000~0xF001	61440~61441	Firmware Version	ASCII, in Format of x.yz (e.g., 1.01)	Determined by Firmware.	N/A	R
0xF002~0xF004	61442~61444	Firmware Release Date	ASCII, in Format of YYMMDD (221228)	Determined by Firmware.	N/A	R
0xF005~0xF005	61445~61445	Firmware Patch Number	ASCII, in Format of xy (01)	Determined by Firmware	N/A	R
0xF010~0xF011	61456~61457	Bootloader Model Name	ASCII, in Format of XYZa (e.g. MDA0)	Determined by Bootloader		R

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System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0xF012~0xF013	61458~61459	Bootloader Version	ASCII, in Format of x.yz (e.g. 1.01)	Determined by Bootloader		R
0xF014~0xF016	61460~61462	Bootloader Release Date	ASCII, in Format of YYMMDD (e.g. 241108)	Determined by Bootloader		R
0xF017~0xF017	61463~61463	Bootloader Patch Number	ASCII, in Format of xy (e.g. 01)	Determined by Bootloader		R
0xF040~0xF04F	61504~61519	Serial Number	In the Format like MDAYYMMabcde (e.g., MDA250500001)			RW
0xF050~0xF051	61520~61521	Hardware version	In the Format like x.yz (e.g., 1.01)	1.01		RW
0xF052~0xF052	61522~61522	Function Model Type	0: default: AcuDC-262 1: AcuDC-261 2: AcuDC-262	0		RW
0xF053~0xF053	61523~61523	Voltage Input Type	0: 1000V	0		RW
0xF054~0xF054	61524~61524	Current Input Type	0: A1 (Shunt) 1: A2 (0 to 20mA Hall Sensor) 2: A3 (-5V to 5V Hall Sensor) 3: A4 (External MID Shunt)	0		RW
0xF055~0xF055	61525~61525	Power Supply Type	1 for P2	1		RW
0xF056~0xF065	61526~61541	MAC address				RW
0xF066~0xF066	61542~61542	Certificate Type	0: None; 1: MID	0		
0xF067~0xF067	61543~61543	External Shunt Type	0: None; 400: 400A; 600: 600A; 2000: 2000A	0		RW
0xF068~0xF068	61544~61544	Hardware Patch Number	In the Format like xy (e.g., 00)	1		RW
0xF069~0xF06F	61545~61551	Reserved				RW

7.3.4 Date and Time Registers

Function code: 03H for reading, 10H for pre-setting.

Table 7-10a AcuDC-261 Data and Time Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x103F	4159	Week	1~7	1	word	R/W
0x1040	4160	Year	2000~2099	2524	word	R/W
0x1041	4161	Month	1~12	1	word	R/W
0x1042	4162	Day	1~31	1	word	R/W
0x1043	4163	Hour	0~23	0	word	R/W
0x1044	4164	Minute	0~59	0	word	R/W
0x1045	4165	Second	0~59	0	word	R/W

Table 7-10b AcuDC-262 Data and Time Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x103F	4159	Week	1~7	6	word	R/W
0x1040	4160	Year	2000~2099	2000	word	R/W
0x1041	4161	Month	1~12	1	word	R/W
0x1042	4162	Day	1~31	1	word	R/W
0x1043	4163	Hour	0~23	0	word	R/W
0x1044	4164	Minute	0~59	0	word	R/W
0x1045	4165	Second	0~59	0	word	R/W

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7.3.5 Real Time Parameters (Int) Registers

Function code: 03H for reading, 10H for pre-setting.

Table 7-11a AcuDc-261 Real Time Parameters (Int) Registers

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3200	12800	V Source	N/A	N/A	int16	R
0x3201	12801	Current 1	N/A	N/A	int16	R
0x3202	12802	Current 2	N/A	N/A	int16	R
0x3203	12803	Current Sum	N/A	N/A	int16	R
0x3204	12804	Power 1	N/A	N/A	int16	R
0x3205	12805	Power 2	N/A	N/A	int16	R
0x3206	12806	Power sum	N/A	N/A	int16	R
0x3207	12807	Voltage Ripple Factor	N/A	N/A	int16	R
0x3208	12808	Current Ripple Factor 1	N/A	N/A	int16	R
0x3209	12809	Current Ripple Factor 2	N/A	N/A	int16	R
0x3210	12816	V Load - Ch 1	N/A	N/A	int16	R
0x3211	12817	V Load - Ch 2	N/A	N/A	int16	R

Table 7-11b AcuDc-262 Real Time Parameters (Int) Registers

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3200	12800	V Source	N/A	N/A	int16	R
0x3201	12801	Current 1	N/A	N/A	int16	R
0x3202	12802	Current 2	N/A	N/A	int16	R
0x3203	12803	Current Sum	N/A	N/A	int16	R
0x3204	12804	Power 1	N/A	N/A	int16	R
0x3205	12805	Power 2	N/A	N/A	int16	R
0x3206	12806	Power sum	N/A	N/A	int16	R
0x3207	12807	Voltage Ripple Factor	N/A	N/A	int16	R

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3208	12808	Current Ripple Factor 1	N/A	N/A	int16	R
0x3209	12809	Current Ripple Factor 2	N/A	N/A	int16	R
0x320A	12810	Demand Current 1	N/A	N/A	int16	R
0x320B	12811	Demand Current 2	N/A	N/A	int16	R
0x320C	12812	Demand Current sum	N/A	N/A	int16	R
0x320D	12813	Demand Power 1	N/A	N/A	int16	R
0x320E	12814	Demand Power 2	N/A	N/A	int16	R
0x320F	12815	Demand Power sum	N/A	N/A	int16	R
0x3210	12816	V Load - Ch 1	N/A	N/A	int16	R
0x3211	12817	V Load - Ch 2	N/A	N/A	int16	R

7.3.6 Real Time Parameters (Float) Registers

Function code: 03H for reading, 10H for pre-setting.

Table 7-12a AcuDC-261 Real Time Parameters (Float) Registers

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3000~0x3001	12288~12289	V Source	N/A	N/A	float32	R
0x3002~0x3003	12290~12291	Current 1	N/A	N/A	float32	R
0x3004~0x3005	12292~12293	Current 2	N/A	N/A	float32	R
0x3006~0x3007	12294~12295	Current Sum	N/A	N/A	float32	R
0x3008~0x3009	12296~12297	Power 1	N/A	N/A	float32	R
0x300A~0x300B	12298~12299	Power 2	N/A	N/A	float32	R
0x300C~0x300D	12300~12301	Power sum	N/A	N/A	float32	R
0x300E~0x300F	12302~12303	Voltage Ripple Factor	N/A	N/A	float32	R

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3010~0x3011	12304~12305	Current Ripple Factor 1	N/A	N/A	float32	R
0x3012~0x3013	12306~12307	Current Ripple Factor 2	N/A	N/A	float32	R
0x3020~0x3021	12320~12321	V Load - Ch 1	N/A	N/A	float32	R
0x3022~0x3023	12322~12323	V Load - Ch 2	N/A	N/A	float32	R

Table 7-12b AcuDC-262 Real Time Parameters (Float) Registers

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x3000~0x3001	12288~12289	V Source	N/A	N/A	float32	R
0x3002~0x3003	12290~12291	Current 1	N/A	N/A	float32	R
0x3004~0x3005	12292~12293	Current 2	N/A	N/A	float32	R
0x3006~0x3007	12294~12295	Current Sum	N/A	N/A	float32	R
0x3008~0x3009	12296~12297	Power 1	N/A	N/A	float32	R
0x300A~0x300B	12298~12299	Power 2	N/A	N/A	float32	R
0x300C~0x300D	12300~12301	Power sum	N/A	N/A	float32	R
0x300E~0x300F	12302~12303	Voltage Ripple Factor	N/A	N/A	float32	R
0x3010~0x3011	12304~12305	Current Ripple Factor 1	N/A	N/A	float32	R
0x3012~0x3013	12306~12307	Current Ripple Factor 2	N/A	N/A	float32	R
0x3014~0x3015	12308~12309	Demand Current 1	N/A	N/A	float32	R
0x3016~0x3017	12310~12311	Demand Current 2	N/A	N/A	float32	R
0x3018~0x3019	12312~12313	Demand Current sum	N/A	N/A	float32	R
0x301A~0x301B	12314~12315	Demand Power 1	N/A	N/A	float32	R
0x301C~0x301D	12316~12317	Demand Power 2	N/A	N/A	float32	R
0x301E~0x301F	12318~12319	Demand Power sum	N/A	N/A	float32	R
0x3020~0x3021	12320~12321	V Load - Ch 1	N/A	N/A	float32	R
0x3022~0x3023	12322~12323	V Load - Ch 2	N/A	N/A	float32	R

7.3.7 Energy Parameters Registers

Function code: 03H for reading, 10H for pre-setting.

Table 7-13 Energy Parameters Registers

System Setting: 03H Read, 10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x4000~0x4003	16384~16387	Import Energy 1	0~999999999999.999	0	double	R/W
0x4004~0x4007	16388~16391	Export Energy 1	0~999999999999.999	0	double	R/W
0x4008~0x400B	16392~16395	Net Energy 1	0~999999999999.999	0	double	R/W
0x400C~0x400F	16396~16399	Total Energy 1	0~999999999999.999	0	double	R/W
0x4010~0x4013	16400~16403	Import Energy 2	0~999999999999.999	0	double	R/W
0x4014~0x4017	16404~16407	Export Energy 2	0~999999999999.999	0	double	R/W
0x4018~0x401B	16408~16411	Net Energy 2	0~999999999999.999	0	double	R/W
0x401C~0x401F	16412~16415	Total Energy 2	0~999999999999.999	0	double	R/W
0x4020~0x4023	16416~16419	Import Energy Sum	0~999999999999.999	0	double	R/W
0x4024~0x4027	16420~16423	Export Energy Sum	0~999999999999.999	0	double	R/W
0x4028~0x402B	16424~16427	Net Energy Sum	0~999999999999.999	0	double	R/W
0x402C~0x402F	16428~16431	Total Energy Sum	0~999999999999.999	0	double	R/W

7.3.8 Charge Parameters Registers

Function code: 03H for reading, 10H for pre-setting.

Table 7-14 Charge Parameters Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x4030~0x4033	16432~16435	Import Charge 1	0~999999999999.999	0	double	R/W
0x4034~0x4037	16436~16439	Export Charge 1	0~999999999999.999	0	double	R/W
0x4038~0x403B	16440~16443	Net Charge 1	0~999999999999.999	0	double	R/W
0x403C~0x403F	16444~16447	Total Charge 1	0~999999999999.999	0	double	R/W
0x4040~0x4043	16448~16451	Import Charge 2	0~999999999999.999	0	double	R/W
0x4044~0x4047	16452~16455	Export Charge 2	0~999999999999.999	0	double	R/W
0x4048~0x404B	16456~16459	Net Charge 2	0~999999999999.999	0	double	R/W
0x404C~0x404F	16460~16463	Total Charge 2	0~999999999999.999	0	double	R/W
0x4050~0x4053	16464~16467	Import Charge Sum	0~999999999999.999	0	double	R/W

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System Setting: 03H Read,10H Write						
Address(H)	Address(D)	Parameter	Range	Default	Data Type	Access Property
0x4054~0x4057	16468~16471	Export Charge Sum	0~999999999999.999	0	double	R/W
0x4058~0x405B	16472~16475	Net Charge Sum	0~999999999999.999	0	double	R/W
0x405C~0x405F	16476~16479	Total Charge Sum	0~999999999999.999	0	double	R/W

7.3.9 Max/Min Parameters Registers

Function code: 03H for reading.

Table 7-15a AcuDC-261 Max/Min Parameters Registers

System Setting: 03H Read						
Address(H)	Address(D)	Parameter	Range	Default	Data Type	Access Property
0x4136~0x4137	16694~16695	V Max Value	N/A	N/A	float32	R
0x4138~0x413D	16696~16697	V Max Timestamp	N/A	N/A	int	R
0x413E~0x413F	16702~16703	I1 Max Value	N/A	N/A	float32	R
0x4140~0x4145	16704~16705	I1 Max Timestamp	N/A	N/A	int	R
0x4146~0x4147	16710~16711	I2 Max Value	N/A	N/A	float32	R
0x4148~0x414D	16712~16713	I2 Max Timestamp	N/A	N/A	int	R
0x414E~0x414F	16718~16719	Isum Max Value	N/A	N/A	float32	R
0x4150~0x4155	16720~16725	Isum Max Timestamp	N/A	N/A	int	R
0x41E5~0x41E6	16869~16870	V Min Value	N/A	N/A	float32	R
0x41E7~0x41EC	16871~16876	V Min Timestamp	N/A	N/A	int	R
0x41ED~0x41EE	16877~16878	I1 Min Value	N/A	N/A	float32	R
0x41EF~0x41F4	16879~16884	I1 Min Timestamp	N/A	N/A	int	R
0x41F5~0x41F6	16885~16886	I2 Min Value	N/A	N/A	float32	R
0x41F7~0x41FC	16887~16892	I2 Min Timestamp	N/A	N/A	int	R
0x41FD~0x41FE	16893~16894	Isum Min Value	N/A	N/A	float32	R
0x41FF~0x4204	16895~16900	Isum Min Timestamp	N/A	N/A	int	R
0x4205~0x4206	16901~16900	P1 Min Value	N/A	N/A	float32	R
0x4207~0x420C	16903~16908	P1 Min Timestamp	N/A	N/A	int	R
0x420D~0x420E	16909~16910	P2 Min Value	N/A	N/A	float32	R
0x420F~0x4214	16911~16916	P2 Min Timestamp	N/A	N/A	int	R

System Setting: 03H Read						
Address(H)	Address(D)	Parameter	Range	Default	Data Type	Access Property
0x4215~0x4216	16917~16918	Psum Min Value	N/A	N/A	float32	R
0x4217~0x421C	16919~16924	Psum Min Timestamp	N/A	N/A	int	R
0x421D~0x421E	16925~16926	Ripple factor U Min Value	N/A	N/A	float32	R
0x421F~0x4224	16927~16932	Ripple factor U Min Timestamp	N/A	N/A	int	R
0x4225~0x4226	16933~16934	Ripple factor I1 Min Value	N/A	N/A	float32	R
0x4227~0x422C	16935~16940	Ripple factor I1 Min Timestamp	N/A	N/A	int	R
0x422D~0x422E	16941~16942	Ripple factor I2 Min Value	N/A	N/A	float32	R
0x422F~0x4234	16943~16948	Ripple factor I2 Min Timestamp	N/A	N/A	int	R
0x4235~0x4236	16949~16950	V1 Compensated Min Value	N/A	N/A	float32	R
0x4237~0x423C	16951~16956	V1 Compensated Min Timestamp	N/A	N/A	int	R
0x423D~0x423E	16957~16958	V2 Compensated Min Value	N/A	N/A	float32	R
0x423F~0x4244	16959~16964	V2 Compensated Min Timestamp	N/A	N/A	int	R

Table 7-15b AcuDC-262 Max/Min Parameters Registers

System Setting: 03H Read						
Address(H)	Address(D)	Parameter	Range	Default	Data Type	Access Property
0x4136~0x4137	16694~16695	V Max Value	N/A	N/A	float32	R
0x4138~0x413D	16696~16697	V Max Timestamp	N/A	N/A	int	R
0x413E~0x413F	16702~16703	I1 Max Value	N/A	N/A	float32	R
0x4140~0x4145	16704~16705	I1 Max Timestamp	N/A	N/A	int	R
0x4146~0x4147	16710~16711	I2 Max Value	N/A	N/A	float32	R
0x4148~0x414D	16712~16713	I2 Max Timestamp	N/A	N/A	int	R
0x414E~0x414F	16718~16719	Isum Max Value	N/A	N/A	float32	R
0x4150~0x4155	16720~16725	Isum Max Timestamp	N/A	N/A	int	R

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System Setting: 03H Read						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x4156~0x4157	16726~16727	P1 Max Value	N/A	N/A	float32	R
0x4158~0x415D	16728~16733	P1 Max Timestamp	N/A	N/A	int	R
0x415E~0x415F	16734~16735	P2 Max Value	N/A	N/A	float32	R
0x4160~0x4165	16736~16741	P2 Max Timestamp	N/A	N/A	int	R
0x4166~0x4167	16742~16743	Psum Max Value	N/A	N/A	float32	R
0x4168~0x416D	16744~16749	Psum Max Timestamp	N/A	N/A	int	R
0x416E~0x416F	16750~16751	Voltage Ripple Factor Max Value	N/A	N/A	float32	R
0x4170~0x4175	16752~16757	Voltage Ripple Factor Max Timestamp	N/A	N/A	int	R
0x4176~0x4177	16758~16759	Current Ripple Factor 1 Max Value	N/A	N/A	float32	R
0x4178~0x417D	16760~16765	Current Ripple factor 1 Max Timestamp	N/A	N/A	int	R
0x417E~0x417F	16766~16767	Current Ripple Factor 2 Max Value	N/A	N/A	float32	R
0x4180~0x4185	16768~16773	Current Ripple Factor 2 Max Timestamp	N/A	N/A	int	R
0x4186~0x4187	16774~16775	Demand I1 Max Value	N/A	N/A	float32	R
0x4188~0x418D	16776~16781	Demand I1 Max Timestamp	N/A	N/A	int	R
0x418E~0x418F	16782~16783	Demand I2 Max Value	N/A	N/A	float32	R
0x4190~0x4195	16784~16789	Demand I2 Max Timestamp	N/A	N/A	int	R
0x4196~0x4197	16790~16791	Demand Isum Max Value	N/A	N/A	float32	R
0x4198~0x419D	16792~16797	Demand Isum Max Timestamp	N/A	N/A	int	R
0x419E~0x419F	16798~16799	Demand P1 Max Value	N/A	N/A	float32	R
0x41A0~0x41A5	16800~16805	Demand P1 Max Timestamp	N/A	N/A	int	R
0x41A6~0x41A7	16806~16807	Demand P2 Max Value	N/A	N/A	float32	R
0x41A8~0x41AD	16808~16813	Demand P2 Max Timestamp	N/A	N/A	int	R
0x41AE~0x41AF	16814~16815	Demand Psum Max Value	N/A	N/A	float32	R

System Setting: 03H Read						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x41B0~0x41B5	16816~16868	Demand Psum Max Timestamp	N/A	N/A	int	R
0x41E5~0x41E6	16869~16870	V Min Value	N/A	N/A	float32	R
0x41E7~0x41EC	16871~16876	V Min Timestamp	N/A	N/A	int	R
0x41ED~0x41EE	16877~16878	I1 Min Value	N/A	N/A	float32	R
0x41EF~0x41F4	16879~16884	I1 Min Timestamp	N/A	N/A	int	R
0x41F5~0x41F6	16885~16886	I2 Min Value	N/A	N/A	float32	R
0x41F7~0x41FC	16887~16892	I2 Min Timestamp	N/A	N/A	int	R
0x41FD~0x41FE	16893~16894	Isum Min Value	N/A	N/A	float32	R
0x41FF~0x4204	16895~16900	Isum Min Timestamp	N/A	N/A	int	R
0x4205~0x4206	16901~16900	P1 Min Value	N/A	N/A	float32	R
0x4207~0x420C	16903~16908	P1 Min Timestamp	N/A	N/A	int	R
0x420D~0x420E	16909~16910	P2 Min Value	N/A	N/A	float32	R
0x420F~0x4214	16911~16916	P2 Min Timestamp	N/A	N/A	int	R
0x4215~0x4216	16917~16918	Psum Min Value	N/A	N/A	float32	R
0x4217~0x421C	16919~16924	Psum Min Timestamp	N/A	N/A	int	R
0x421D~0x421E	16925~16926	Ripple factor U Min Value	N/A	N/A	float32	R
0x421F~0x4224	16927~16932	Ripple factor U Min Timestamp	N/A	N/A	int	R
0x4225~0x4226	16933~16934	Ripple factor I1 Min Value	N/A	N/A	float32	R
0x4227~0x422C	16935~16940	Ripple factor I1 Min Timestamp	N/A	N/A	int	R
0x422D~0x422E	16941~16942	Ripple factor I2 Min Value	N/A	N/A	float32	R
0x422F~0x4234	16943~16948	Ripple factor I2 Min Timestamp	N/A	N/A	int	R
0x4235~0x4236	16949~16950	V1 Compensated Min Value	N/A	N/A	float32	R
0x4237~0x423C	16951~16956	V1 Compensated Min Timestamp	N/A	N/A	int	R
0x423D~0x423E	16957~16958	V2 Compensated Min Value	N/A	N/A	float32	R
0x423F~0x4244	16959~16964	V2 Compensated Min Timestamp	N/A	N/A	int	R

7.3.10 Custom Read Registers

The custom read function allows users to independently match combinations of parameters and registers.

Table 7-16 Custom Reading Setting Registers

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x6B00	27392	Number of Byte Set	N/A	N/A	R/W
0x6B01	27393	1st Reading	Address	N/A	R/W
0x6B02	27394	2nd Reading	Address	N/A	R/W
0x6B03	27395	3rd Reading	Address	N/A	R/W
0x6B04	27396	4th Reading	Address	N/A	R/W
0x6B05	27397	5th Reading	Address	N/A	R/W
0x6B06	27398	6th Reading	Address	N/A	R/W
0x6B07	27399	7th Reading	Address	N/A	R/W
0x6B08	27400	8th Reading	Address	N/A	R/W
0x6B09	27401	9th Reading	Address	N/A	R/W
0x6B0A	27402	10thReading	Address	N/A	R/W
0x6B0B	27403	11thReading	Address	N/A	R/W
0x6B0C	27404	12thReading	Address	N/A	R/W
0x6B0D	27405	13thReading	Address	N/A	R/W
0x6B0E	27406	14thReading	Address	N/A	R/W
0x6B0F	27407	15thReading	Address	N/A	R/W
0x6B10	27408	16thReading	Address	N/A	R/W
0x6B11	27409	17thReading	Address	N/A	R/W
0x6B12	27410	18thReading	Address	N/A	R/W
0x6B13	27411	19thReading	Address	N/A	R/W
0x6B14	27412	20thReading	Address	N/A	R/W
0x6B15	27413	21st Reading	Address	N/A	R/W
0x6B16	27414	22nd Reading	Address	N/A	R/W
0x6B17	27415	23rd Reading	Address	N/A	R/W
0x6B18	27416	24thReading	Address	N/A	R/W
0x6B19	27417	25thReading	Address	N/A	R/W
0x6B1A	27418	26thReading	Address	N/A	R/W
0x6B1B	27419	27thReading	Address	N/A	R/W

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x6B1C	27420	28thReading	Address	N/A	R/W
0x6B1D	27421	29thReading	Address	N/A	R/W
0x6B1E	27422	30thReading	Address	N/A	R/W
0x6B1F	27423	31st Reading	Address	N/A	R/W
0x6B20	27424	32nd Reading	Address	N/A	R/W
0x6B21	27425	33rd Reading	Address	N/A	R/W
0x6B22	27426	34thReading	Address	N/A	R/W
0x6B23	27427	35thReading	Address	N/A	R/W
0x6B24	27428	36thReading	Address	N/A	R/W
0x6B25	27429	37thReading	Address	N/A	R/W
0x6B26	27430	38thReading	Address	N/A	R/W
0x6B27	27431	39thReading	Address	N/A	R/W
0x6B28	27432	40thReading	Address	N/A	R/W

Table 7-17 Custom Reading Registers

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x6A00	27136	1st Reading	Reading	N/A	R/W
0x6A01	27137	2nd Reading	Reading	N/A	R/W
0x6A02	27138	3rd Reading	Reading	N/A	R/W
0x6A03	27139	4th Reading	Reading	N/A	R/W
0x6A04	27140	5th Reading	Reading	N/A	R/W
0x6A05	27141	6th Reading	Reading	N/A	R/W
0x6A06	27142	7th Reading	Reading	N/A	R/W
0x6A07	27143	8th Reading	Reading	N/A	R/W
0x6A08	27144	9th Reading	Reading	N/A	R/W
0x6A09	27145	10thReading	Reading	N/A	R/W
0x6A0A	27146	11thReading	Reading	N/A	R/W
0x6A0B	27147	12thReading	Reading	N/A	R/W
0x6A0C	27148	13thReading	Reading	N/A	R/W
0x6A0D	27149	14thReading	Reading	N/A	R/W

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x6A0E	27150	15thReading	Reading	N/A	R/W
0x6A0F	27151	16thReading	Reading	N/A	R/W
0x6A10	27152	17thReading	Reading	N/A	R/W
0x6A11	27153	18thReading	Reading	N/A	R/W
0x6A12	27154	19thReading	Reading	N/A	R/W
0x6A13	27155	20thReading	Reading	N/A	R/W
0x6A14	27156	21st Reading	Reading	N/A	R/W
0x6A15	27157	22nd Reading	Reading	N/A	R/W
0x6A16	27158	23rd Reading	Reading	N/A	R/W
0x6A17	27159	24thReading	Reading	N/A	R/W
0x6A18	27160	25thReading	Reading	N/A	R/W
0x6A19	27161	26thReading	Reading	N/A	R/W
0x6A1A	27162	27thReading	Reading	N/A	R/W
0x6A1B	27163	28thReading	Reading	N/A	R/W
0x6A1C	27164	29thReading	Reading	N/A	R/W
0x6A1D	27165	30thReading	Reading	N/A	R/W
0x6A1E	27166	31st Reading	Reading	N/A	R/W
0x6A2F	27167	32nd Reading	Reading	N/A	R/W
0x6A20	27168	33rd Reading	Reading	N/A	R/W
0x6A21	27169	34thReading	Reading	N/A	R/W
0x6A22	27170	35thReading	Reading	N/A	R/W
0x6A23	27171	36thReading	Reading	N/A	R/W
0x6A24	27172	37thReading	Reading	N/A	R/W
0x6A25	27173	38thReading	Reading	N/A	R/W
0x6A26	27174	39thReading	Reading	N/A	R/W
0x6A27	27175	40thReading	Reading	N/A	R/W

7.3.11 Data Log Parameter Registers

NOTE Data log parameter registers are only supported in AcuDC-262.

7.3.11.1 Data Log 1, 2, 3 Setting

Function code: 03H for reading, 10H for pre-setting.

Table 7-18 Data Log 1, 2, 3 Setting Registers

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x1100	4352	Log1 #Registers #Sectors	N/A	N/A	R/W
0x1101	4353	Log1 Interval	N/A	N/A	R/W
0x1102~0x1176	4354~4470	Log1 Register #1~#117 Identifier	N/A	N/A	R/W
0x1177~0x11B1	4471~4529	Log1 Register #1~#117 Descriptors	N/A	N/A	R/W
0x11B2	4530	Datalog Mode Selection	N/A	N/A	R/W
0x11B3	4531	Start Month, Year	Low Byte: Month High byte: Year	1 2000	R/W
0x11B4	4532	Start Day, Hour	Low Byte: Hour High Byte: Day	0 1	R/W
0x11B5	4533	Start Minute, Second	Low Byte: Second High Byte: Minute	0 0	R/W
0x11B6	4534	End Month, Year	Low Byte: Month High Byte: Year	1 2000	R/W
0x11B7	4535	End Day, Hour	Low Byte: Hour High Byte: Day	0 1	R/W
0x11B8	4536	End Minute, Second	Low Byte: Second High Byte: Minute	0 0	R/W
0x11B9	4537	Clear Data Log1	Write 1 to Clear	N/A	R/W
0x11C0~0x1279	4544~4729	Log2 Setting	N/A	N/A	R/W
0x1280~0x1339	4736~4921	Log3 Setting	N/A	N/A	R/W

7.3.11.2 Data Log 1, 2, 3 Reading

Function code: 03H for reading, 10H for pre-setting.

Table 7-19 Data Log 1,2,3 Reading Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x6000	24576	Record Type, Enable, State	N/A	N/A	N/A	R/W
0x6001	24577	Record # of Each Window + Window State	N/A	N/A	N/A	R/W
0x6002~0x6003	24578~24579	OFFSET	N/A	N/A	N/A	R/W
0x6004~0x607E	24580~24702	Window	N/A	N/A	N/A	R

7.3.11.3 Data Log 1, 2, 3 Status

Function code: 03H for reading.

Table 7-20 Data Log 1 Status Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x6100~0x6101	24832~24833	Max Records	N/A	N/A	unit32	R
0x6102~0x6103	24834~24835	Used Records	N/A	N/A	unit32	R
0x6104	24836	Record Size	N/A	N/A	unit16	R
0x6105	24837	Log Availability	N/A	N/A	unit16	R
0x6106~0x6108	24838~24840	First Record Timestamp	N/A	N/A	word	R
0x6109~0x610B	24841~24843	Last Record Timestamp	N/A	N/A	word	R

Table 7-21 Data Log 2 Status Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x6200~0x6201	25088~25089	Max Records	N/A	N/A	unit32	R
0x6202~0x6203	25090~25091	Used Records	N/A	N/A	unit32	R
0x6204	25092	Record Size	N/A	N/A	unit16	R
0x6205	25093	Log Availability	N/A	N/A	unit16	R
0x6206~0x6208	25094~25096	First Record Timestamp	N/A	N/A	word	R
0x6209~0x620B	25097~25099	Last Record Timestamp	N/A	N/A	word	R

Table 7-22 Data Log 3 Status Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x6300~0x6301	25344~25345	Max Records	N/A	N/A	unit32	R
0x6302~0x6303	25346~25347	Used Records	N/A	N/A	unit32	R
0x6304	25348	Record Size	N/A	N/A	unit16	R
0x6305	25349	Log Availability	N/A	N/A	unit16	R
0x6306~0x6308	25350~25352	First Record Timestamp	N/A	N/A	word	R
0x6309~0x630B	25353~25355	Last Record Timestamp	N/A	N/A	word	R

7.3.11.4 Data Log 4 setting

Function code: 03H for reading, 10H for pre-setting.

Table 7-23 Data Log 4 Setting Registers

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x1500	5376	Log4 #Registers #Sectors	0~39; 50	0	R/W
0x1501	5377	Log4 Interval	1 ~ 1440	0	R/W

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x1502~0x1576	5378~5494	Log4 Register #1-#117 Identifier	Parameter Selection Address Range: 0x3000 ~ 0x3013	0	R/W
0x1577~0x15B2	5495~5553	Log4 Register #1-#117 Descriptors	0~2	0	R/W
0x15B2	5554	Data Log Mode Selection	0~2	0	R/W
0x15B3	5555	Start Month, Year	Low Byte: Month High Byte: Year	1 2000	R/W
0x15B4	5556	Start Day, Hour	Low Byte: Hour High Byte: Day	0 1	R/W
0x15B5	5557	Start Minute, Second	Low Byte: second High Byte: Minute	0 0	R/W
0x15B6	5558	End Month, Year	Low Byte: Month High Byte: Year	1 2000	R/W
0x15B7	5559	End Day, Hour	Low Byte: Hour High Byte: Day	0 1	R/W
0x15B8	5560	End Minute, Second	Low Byte: Second High Byte: Minute	0 0	R/W
0x15B9	5561	Clear Data Log 4	Write 1 to Clear	0	R/W

7.3.11.5 Data Log 4 Reading

Function code: 03H for reading, 10H for pre-setting.

Table 7-24 Data Log 4 Reading Registers

System Setting: 03H Read,10H Write					
Address(H)	**Address(D)**	**Parameter**	**Details**	**Default**	**Access Property**
0x6400	25600	Record Type, Enable, State	0~3 (3 for Data Log 4)	0	R/W
0x6401	25601	Record Number of Each Window + Window State	High Byte: Record Number of Window (Setting) Low Byte: Window State **0x0B:** Data Effective **0xFF:** Data not Effective **0xAA:** Data log on Clearing **0xBB:** Data log Clearing End	0	R/W
0x6402~0x6403	25602~25603	OFFSET	N/A	0	R/W
0x6404~0x647E	25604~25726	Window	Data Log Format: Record Number (4 Bytes) + Time Stamps (6 Bytes) + [data1~dataN] (6 Nbytes) + CRC (2 Bytes) Data Format: parameter1 average value, parameter2 average value...parameter1 max value, parameter2 max value, parameter1 min value, parameter2 min value...	N/A	R

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7.3.11.6 Data Log 4 Status

Function code: 03H for reading.

Table 7-25 Data Log 4 Status Registers

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x6500~0x6501	25856~25857	Max Records	0~468104	N/A	uint32	R
0x6502~0x6503	25858~25859	Used Records	1~468104	N/A	uint32	R
0x6504	25860	Record Size	18~714	N/A	uint16	R
0x6505	25861	Log Availability	N/A	N/A	word	R
0x6506~0x6508	25862~25864	First Record Time Stamp	N/A	N/A	word	R
0x6509~0x650B	25865~25867	Last Record Time Stamp	N/A	N/A	word	R

NOTE

The maximum number of records for data log 4 is calculated by the following equation:

$$Record_{max} = \frac{65536}{(N_R \times 6 + 12)} \times N_S$$

Where N_R is the number of registers and N_S is the sector number (fixed to 50 at present).

7.3.12 EichLog

NOTE

EichLogs are only supported in AcuDC-261.

Table 7-26 EichLog

System Setting: 03H Read,10H Write						
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data Type**	**Access Property**
0x5700	22272	Max Records	Fixed as 6000	N/A	uint16_t	RO
0x5701	22273	Record Index		N/A	uint16_t	RO
0x5702	22274	Eichlog Full Status	0x0000 - Not full 0x0001 - Full Others - Reserved	N/A	uint 16	RO
0x5703	22275	Record Number	N/A	N/A	uint16_t	RO
0x5800	22528	Eichlog ID to Read	1~6000	N/A	uint16_t	RW
0x5801	22529	Eichlog Number Needed to Read	Fixed as 0x01	N/A	uint16_t	RW
0x5802	22530	Eichlog Read Window Status	0x0B - The Data Windown is Ready 0xFF - The Request Data is Invalid;	N/A	uint16_t	RO
0x5803	22531	Eichlog Signature Bytes Size to be Read	N/A	N/A	uint16_t	RO
0x5804	22532	Eichlog Data Window	N/A	N/A	uint8_t	RO
0xF0A0	61600	Boot Firmware Stored CRC32	N/A	N/A	uint32_t	RO
0xF0A2	61602	Boot Firmware Calculated CRC32	N/A	N/A	uint32_t	RO
0xF0A4	61604	App Firmware Stored CRC32	N/A	N/A	uint32_t	RO
0xF0A6	61606	App Firmware Calculated CRC32	N/A	N/A	uint32_t	RO

7.3.13 Transaction Log

NOTE

Transaction logs are only supported in AcuDC-261.

Table 7-26 EichLog

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5000	20480	Channel 1 Identification Status	0 = False 1 = True		uint16	RW	1
0x5001	20481	Channel 1 Identification Level	0 = "NONE" 1 = "HEARSAY" 2 = "TRUSTED" 3 = "VERIFIED" 4 = "CERTIFIED" 5 = "SECURE" 6 = "MISMATCH" 7 = "INVALID" 8 = "OUTDATED" 9= "UNKNOWN"		uint16	RW	1
0x5002	20482	Channel 1 Identification Flags 1	0 = RFID_NONE (Default) 1 = RFID_PLAIN 2 = RFID_RELATED 3 = RFID_PSK		uint16	RW	1
0x5003	20483	Channel 1 Identification Flags 2	0 = OCPP_NONE (Default) 1 = OCPP_RS 2 = OCPP_AUTH 3 = OCPP_RS_TLS 4 = OCPP_AUTH_TLS 5 = OCPP_CACHE 6 = OCPP_WHITELIST 7 = OCPP_CERTIFIED		uint16	RW	1
0x5004	20484	Channel 1 Identification Flags 3	0 = ISO15118_NONE (Default) 1 = ISO15118_PNC		uint16	RW	1
0x5005	20485	Channel 1 Identification Flags 4	0 = PLMN_NONE (Default) 1 = PLMN_RING 2 = PLMN_SMS		uint16	RW	1

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5006	20486	Channel 1 Identification Type	0 = NONE (Default) 1 = DENIED 2 = UNDEFINED 3 = ISO14443 4 = ISO15693 5 = EMAID 6 = EVCCID 7 = EVCOID 8 = ISO7812 9 = CARD_TXN_NR 10 = CENTRAL 11 = CENTRAL_1 12 = CENTRAL_2 13 = LOCAL 14 = LOCAL_1 15 = LOCAL_2 16 = PHONE_ NUMBER 17 = KEY_CODE		uint16	RW	1
0x5007	20487	Channel 1 Identification Data	Max 40 Characters		uint8	RW	20
0x501B	20507	Channel 1 Tariff Text	Max 40 Characters.		uint8	RW	20
0x502F	20527	Transaction Timeout 1 in Seconds	Default 0 (Disabled), Range: 3600~64800		uint16	RW	1
0x5030	20528	Channel 1 CT: Charge Point Identification Type	0: EVSEID 1: CBIDC		uint16	RW	1
0x5031	20529	Channel 1 CI: Charge Point Identification	40 Characters: Default = All Byte Set with 0x00		uint8	RW	20
0x5045	20549	Time Zone Shift	Max = 1440 Min = -1440 Default = 0 (Minutes)		int16	RW	1
0x5046	20550	UTC Timestamp for Synchronization	Default = 0		uint64	RW	4

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x504A	20554	Channel 2 Identification Status	0 = False 1 = True		uint16	RW	1
0x504B	20555	Channel 2 Identification Level	0 = "NONE" 1 = "HEARSAY" 2 = "TRUSTED" 3 = "VERIFIED" 4 = "CERTIFIED" 5 = "SECURE" 6 = "MISMATCH" 7 = "INVALID" 8 = "OUTDATED"9= "UNKNOWN"		uint16	RW	1
0x504C	20556	Channel 2 Identification Flags 1	0 = RFID_NONE (Default) 1 = RFID_PLAIN 2 = RFID_RELATED 3 = RFID_PSK		uint16	RW	1
0x504D	20557	Channel 2 Identification Flags 2	0 = OCPP_NONE (Default) 1 = OCPP_RS 2 = OCPP_AUTH 3 = OCPP_RS_TLS 4 = OCPP_AUTH_TLS 5 = OCPP_CACHE 6 = OCPP_WHITELIST 7 = OCPP_CERTIFIED		uint16	RW	1
0x504E	20558	Channel 2 Identification Flags 3	0 = ISO15118_NONE (Default) 1 = ISO15118_PNC		uint16	RW	1
0x504F	20559	Channel 2 Identification Flags 4	0 = PLMN_NONE (Default) 1 = PLMN_RING 2 = PLMN_SMS		uint16	RW	1

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5050	20560	Channel 2 Identification Type	0 = NONE (Default) 1 = DENIED 2 = UNDEFINED 3 = ISO14443 4 = ISO15693 5 = EMAID 6 = EVCCID 7 = EVCOID 8 = ISO7812 9 = CARD_TXN_NR 10 = CENTRAL 11 = CENTRAL_1 12 = CENTRAL_2 13 = LOCAL 14 = LOCAL_1 15 = LOCAL_2 16 = PHONE_ NUMBER 17 = KEY_CODE		uint16	RW	1
0x5051	20561	Channel 2 Identification Data	Max 40 Characters		uint8	RW	20
0x5065	20581	Channel 2 Tariff Text	Max 40 Characters		uint8	RW	20
0x5079	20601	Channel 2 CT: Charge Point Identification Type	0: EVSEID 1: CBIDC		uint16	RW	1
0x507A	20602	Channel 2 CI: Charge Point Identification	40 chars: Default = All Byte Set with 0x00		uint8	RW	20
0x508E	20622	Transaction Timeout 2 (Seconds)	Default 0 (Disabled), Range: 3600~64800		uint16	RW	1
0x5100	20736	Current Block ID			word	R	1
0x5101	20737	Current Address			word	R	1
0x5102	20738	Min Transaction ID			uint32	R	2
0x5104	20740	Max Transaction ID			uint32	R	2
0x5106	20742	Full (Low Byte)	0: Not Full 1: Sector is Full		word	R	1

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5200	20992	Channel 1 OCMF Command	0: Do Nothing "B" = Start Transaction "E" = End of Transaction "A" = Abort Transaction		uint16	RW	1
0x5201	20993	OCMF File Generate State	0 = Not Ready 1 = Ready to Generate 2 = Generating 3 = Ready to Read 4 = Transaction is in Charging		uint16	R	1
0x5202	20994	Transaction Time			uint64	R	4
0x5206	20998	Time Sync Status	0 = Time Not Synchronized 1 = Time Synchronized		uint16	R	1
0x5207	20999	Channel 1 Transaction Import Energy in kWh.			double	R	4
0x520B	21003	Channel 1 Transaction Export Energy in kWh.			double	R	4
0x520F	21007	Channel 1 Duration (in second).			uint32	R	2
0x5211	21009	Channel 1 Transaction Running Status	0 = Idle 1 = Charging 2 = Out of Power 3 = End Normally 4 = Canceled 5 = End with Overtime		uint16	R	1
0x5212	21010	OFFSET			uint32	RW	2
0x5214	21012	ocmf last transaction id			uint32	R	2

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5216	21014	OCMF First Transaction ID			uint32	R	2
0x5218	21016	TransactionLog ID	TransactionLog ID for Reading OCMF		uint32	RW	2
0x521A	21018	TransactionLog OCMF file size			uint16	R	1
0x521B	21019	TransactionLog OCMF data			uint8	R	600
0x5473	21619	Channel Number for OCMF File	1: Channel 1 2: Channel 2		uint16	R	1
0x5474	21620	Channel 1 Transaction Start Time			uint64	R	4
0x5478	21624	Channel 2 OCMF Command	0: Do nothing "B" = Start Transaction "E" = End of Transaction "A" = Abort Transaction		uint16	RW	1
0x5479	21625	Channel 2 Transaction Import Energy in kWh			double	R	4
0x547D	21629	Channel 2 Transaction Export Energy in kWh			double	R	4
0x5481	21633	Channel 2 Duration (in second)			uint32	R	2
0x5483	21635	Channel 2 Transaction Running Status	0 = Idle 1 = Charging 2 = Out of Power 3 = End Normally 4 = Canceled 5 = End with Overtime		uint16	R	1
0x5484	21636	Channel 2 Transaction Start Time.			uint64	R	4

System Setting: 03H Read,10H Write							
Address(H)	**Address(D)**	**Parameter**	**Range**	**Default**	**Data type**	**Access Property**	**Reg**
0x5488	21640	Transaction ID for Channel 1 in Charging.			uint32	R	2
0x548A	21642	Transaction ID for Channel 2 in Charging			uint32	R	2
0x5500	21760	Max Records			uint32	R	2
0x5502	21762	Used Records			uint32	R	2
0x5504	21764	Record Size	Fixed as 63		uint16	R	1

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