

Acuvim L Series

Multifunction Power Meters



OVER/UNDER LIMIT ALARM



TRUE-RMS MEASURING

**Max &
Min**

MAX & MIN
RECORD



POWER QUALITY ANALYSIS



TOU, 4 TARIFFS, 12 SEASONS
14 SCHEDULES



FEATURES

- Metering of Distribution Feeders, Transformers, Generators, Capacitor Banks and Motors
- Medium and Low Voltage Systems
- Commercial, Industrial, Utility
- Power Quality Analysis
- IP56 Rating



ISO9001 Certified

ACCUEVERGY

DESCRIPTION

The Acuvim-L series are multifunction power meters manufactured by Accuenergy. It is the ideal choice for monitoring and controlling of power distribution system. Some of the features and electric power parameters available on the Acuvim-L are:

- True-RMS Measuring Parameter
- 4-quadrant Energy
- Power Quality Analysis
- Over/Under Limit Alarm
- Energy Pulse Output
- TOU, 4 Tariffs, 12 Seasons, 14 Schedules

Acuvim-L may be used as a data gathering device for an intelligent Power Distribution System or a Plant Automation System. All monitoring data is available via digital RS485 communication port running Modbus® Protocol.

The quality of the power system is important with increasing use of electronic loads such as computers, ballasts or variable frequency drives. With the Acuvim-L power analysis option, any phase current or voltage can be displayed and the harmonic content calculated. By knowing the harmonic distribution, action can be taken to prevent overheated transformers, motors, capacitors, neutral wires and nuisance breaker trips. Redistribution of the system loading can also be determined.

FEATURES

- Metering of distribution feeders, transformers, generators, capacitor banks and motors
- Medium and low voltage systems
- Commercial, industrial, utility
- Power quality analysis

FEATURES

Metering

- Voltage V1, V2, V3, V12, V23, V31
- Current I1, I2, I3, In
- Power P1, P2, P3, Psum
- Reactive Power Q1, Q2, Q3, Qsum
- Apparent Power S1, S2, S3, Ssum
- Frequency F

- Power Factor PF1, PF2, PF3, PF
- Energy Ep_imp, Ep_exp
- Reactive Energy Eq_imp, Eq_exp
- Apparent Energy Es
- Demand Dmd_I1, Dmd_I2, Dmd_I3, Dmd_P, Dmd_Q, Dmd_S

Monitoring

- Power Quality
- Voltage Harmonics 2nd ~31st and THD
- Current Harmonics 2nd ~31st and THD
- Voltage Unbalance Factor U_unbl
- Current Unbalance Factor I_unbl
- Max/Min Statistics
- Meter Running Time and Load Running Time

Alarm

Two (2) parameters may be set within a specified time interval. If indicated parameter is over or under its setting limit and persists over the specified time interval, the event will be recorded with time stamps and trigger the alarm DO output. The indicated parameter can be selected from any of the 35 parameters available.

I/O option module

The Acuvim-DL/EL model can extend the I/O module. Digital input, pulse counter, pulse output and SOE can be provided by extension I/O module.

Pulse Output option

Two digital outputs can be configured as pulse output for kWh and kvarh. The pulse rate and width can be set.

Communication

RS485, industry standard Modbus® RTU protocol; Options are the second RS485 module, PROFIBUS-DP/VO module.

Display

Clear and large character LCD Screen display with white back light; Wide environmental temperature endurance.

Outline

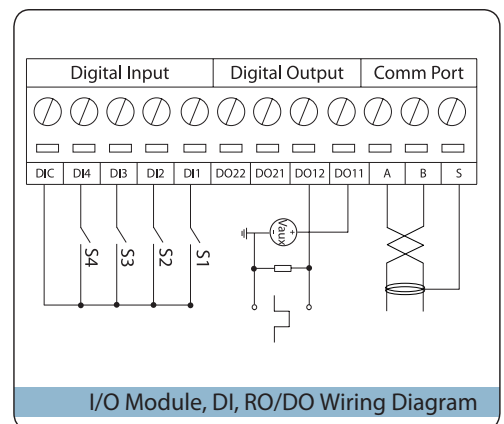
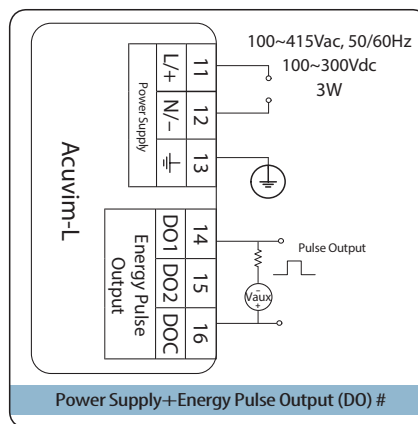
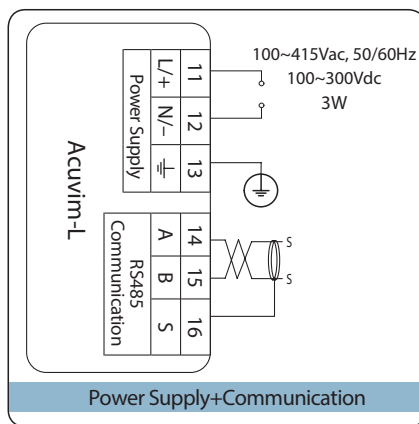
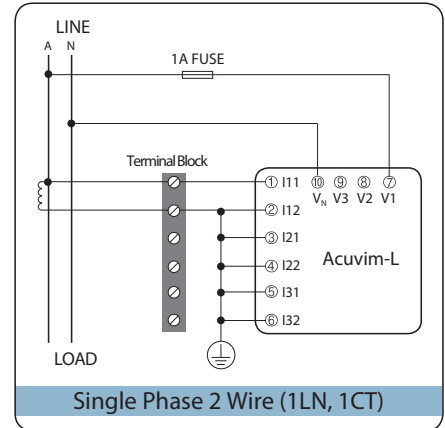
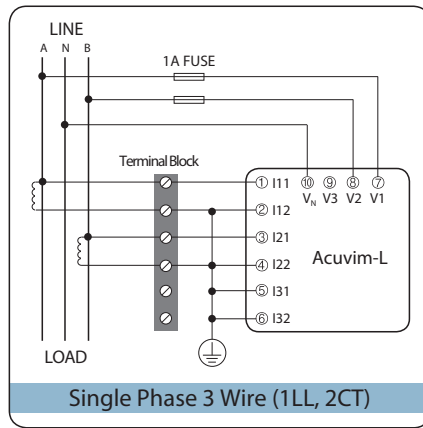
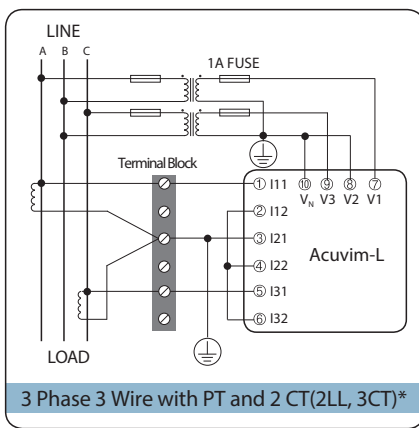
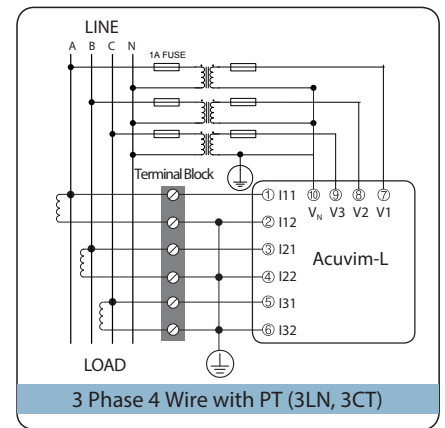
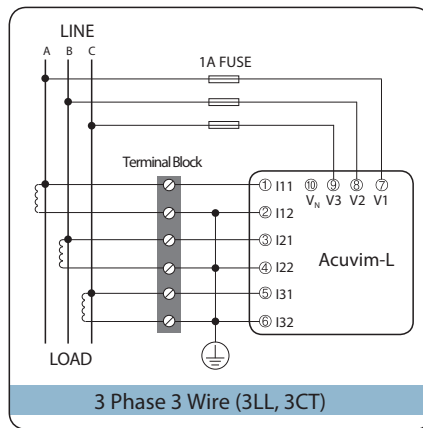
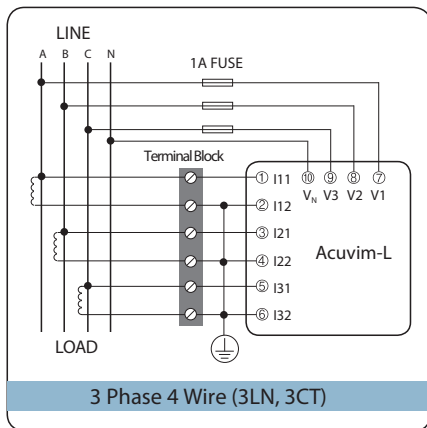
Small size 96×96×51mm (92×92 cutout) DIN or 4" ANSI round
Extension I/O: 90×55.6×19.5mm

Acuvim-L METER

● Function ⊙ Option Blank NA

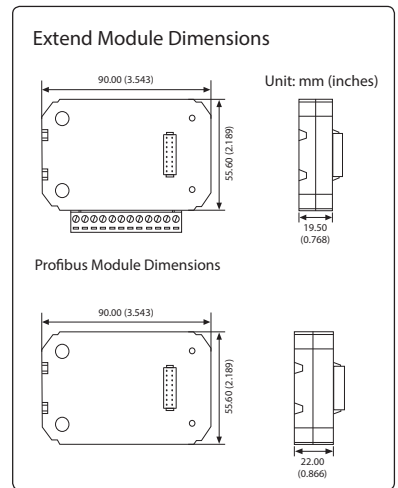
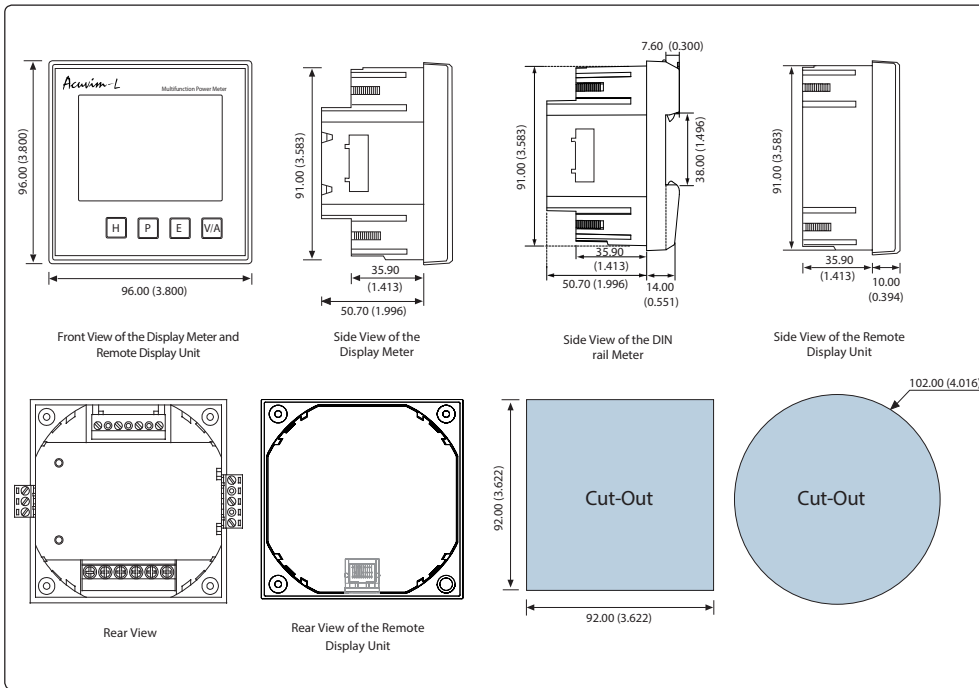
| Function | | Parameter | Acuvim-AL | Acuvim-BL | Acuvim-CL | Acuvim-DL | Acuvim EL | Acuvim-KL |
|--------------------|----------------------|---|-----------|-----------|-----------|-----------|-----------|-----------|
| REAL TIME METERING | Phase Voltage | U1, U2, U3 | ● | ● | ● | ● | ● | |
| | Line Voltage | U12, U23, U31 | ● | ● | ● | ● | ● | |
| | Current | I1, I2, I3, In (Acuvim-KL no neutral current measurement) | ● | ● | ● | ● | ● | ● |
| | Power | P1, P2, P3, PSUM | ● | ● | ● | ● | ● | ● |
| | Reactive Power | Q1, Q2, Q3, Qsum | ● | ● | ● | ● | ● | ● |
| | Apparent Power | S1, S2, S3, SSUM | ● | ● | ● | ● | ● | ● |
| | Power Factor | PF1, PF2, PF3, PF | ● | ● | ● | ● | ● | |
| | Load Nature | L / C / R | ● | ● | ● | ● | ● | |
| | Frequency | F Hz | ● | ● | ● | ● | ● | |
| ENERGY & DEMAND | Energy | Ep_imp, Ep_exp | ● | ● | ● | ● | ● | ● |
| | Reactive Energy | Eq_imp, Eq_exp | ● | ● | ● | ● | ● | ● |
| | Apparent Power | Es | ● | ● | ● | ● | ● | ● |
| | Current Demand | Dmd_I1, Dmd_I2, Dmd_I3 | ● | ● | ● | ● | ● | |
| | Power Demand | Dmd_Psum, Dmd_Qsum, Dmd_Ssum | ● | ● | ● | ● | ● | |
| TIME OF USE | Energy | TOU, 4 Tarifas, 12 estações, 14 Horários | | | | | ● | |
| POWER QUALITY | Voltage Unbalance | U_unbl | ● | ● | ● | ● | ● | |
| | Current Unbalance | I_unbl | ● | ● | ● | ● | ● | |
| | Voltage THD | THD_V1, THD_V2, THD_V3 | ● | ● | ● | ● | ● | |
| | Current THD | THD_I1, THD_I2, THD_I3 | ● | ● | ● | ● | ● | |
| | Individual Harmonics | 2 nd to 31 st | ● | ● | ● | ● | ● | |
| STATISTICS | Max Current Demand | Dmd_I1_max, Dmd_I2_max, Dmd_I3_max | ● | ● | ● | ● | ● | |
| | Max Power Demand | Dmd_Psum_max, Dmd_Qsum_max, Dmd_Ssum_max | ● | ● | ● | ● | ● | |
| | Max & Min of Voltage | | ● | ● | ● | ● | ● | |
| | Max & Min of Current | | ● | ● | ● | ● | ● | |
| HOUR | Running Time | Hour | ● | ● | ● | ● | ● | ● |
| | Load Running Time | Hour | | | | ● | ● | ● |
| I/O | Energy Pulse Output | 2 DO, configured as pulse output for kWh and kvarh, the pulse rate and width can be set | | ● | | | | |
| | Alarm Output | | | ● | | | | |
| COMMUNICATION | RS-485 | Modbus®-RTU Protocol, 1200~38400 baud rate | | | ● | ● | ● | ● |
| | Second RS-485 | Modbus®-RTU Protocol, 1200~38400 baud rate | | | | ⊙ | ⊙ | |
| | Profibus | PROFIBUS-DP/V0 Protocol | | | | ⊙ | ⊙ | |
| EXTENSION I/O | 4DI, 2DO | SOE, Pulse Counter, Pulse output, Alarm output | | | | ⊙ | ⊙ | |

TYPICAL WIRING



Note: 1. "*" 2CT configuration is optional only in 3 Phase 3 Wire system; 2. "#" Wiring diagram is only applicable to Acuvim BL.

DIMENSIONS



Note:

1. The cable length connecting the Remote Display Unit and the DIN Rail Meter is 2 metres (6 feet). Contact your customer service rep if you require a longer cable.
2. The Remote Display Unit and Display Meter have the same cutout.

IP66/NEMA4X Protection Cover

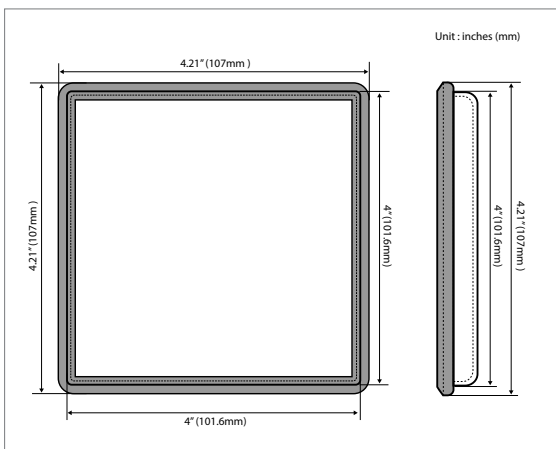
The **IP66/NEMA4X Protection Cover** is designed for **Acuvim-L**, Acuvim II and all 96mm by 96mm display panel meters; it increases the IP environmental rating of a meter's display to IP66 or NEMA 4X regardless of the original rating of display.

The IP66/NEMA4X Protection Cover prevents damage from dust, water, and other elements when paired with Acuvim II and L series meters they become an effective solution for high protection-required applications, such as outdoor panels.



Note: To use the display keys, easily remove the IP66/NEMA4X Protection Cover as the seal is made of durable - tight grip rubber. Simply push back in place when you're done.

DIMENSIONS



SPECIFICATIONS

| METERING | | | |
|-----------------------|----------|------------|----------------------|
| Parameters | Accuracy | Resolution | Range |
| Voltage | 0.5% | 0.1V | 20V 1000kV ~ |
| Current | 0.5% | 0.001A | 0 ~ 50000A |
| Current Demand | 0.5% | 0.001A | 0 ~ 50000A |
| Power | 0.5% | 1W | -9999MW 9999MW ~ |
| Reactive Power | 0.5% | 1Var | -9999Mvar 9999Mvar ~ |
| Apparent Power | 0.5% | 1VA | 0 ~ 9999MVA |
| Power Demand | 0.5% | 1W | -9999MW 9999MW ~ |
| Reactive Power Demand | 0.5% | 1Var | -9999Mvar 9999Mvar ~ |
| Apparent Power Demand | 0.5% | 1VA | 0 ~ 9999MVA |
| Power Factor | 0.5% | 0,001 | -1.0 ~ 1.0 |
| Frequency | 0.2% | 0.01Hz | 45.00 ~ 65.00Hz |
| Energy | 0.5% | 0.1kWh | 0 ~ 99999999.9kWh |
| Reactive Energy | 0.5% | 0.1kvarh | 0 ~ 99999999.9kvarh |
| Apparent Energy | 0.5% | 0,1 V ah | 0 ~ 99999999.9kVAh |
| Harmonics | 1.0% | 0,01% | |
| Meter Running Time | | 0.1hrs | 0 ~ 99999999.9hrs |
| Load Running Time | | 0.1hrs | 0 ~ 99999999.9hrs |

| COMMUNICATION | |
|-----------------------------|--|
| RS-485 (Optional) | Modbus®-RTU Protocol 2-wire connection, Half-duplex, Isolated 1200 to 38400 baud rate Second RS485 (Acuvim-DL and Acuvim-EL can optional) |
| PROFI-BUS (Optional) | PROFIBUS-DP/V0 Protocol Work as PROFIBUS slave, baud rate adaptive, up to 12M Typical input bytes: 32, typical output bytes: 32 PROFIBUS standard according to EN 50170 vol.2 |

| INPUT | |
|--------------------------------------|--|
| Current Inputs (Each Channel) | |
| Nominal Current | 5A / 1A |
| Metering Range | 0 ~ 10 A ac / 0 ~ ac 2A |
| Withstand | 20Arms continuous 100Arms for 1 second, non-recurring |
| Burden | 0.05VA (typical) @ 5Arms |
| Pickup Current | 0.1% of nominal |
| Accuracy | 0.5% |
| Voltage Inputs (Each Channel) | |
| Nominal Full Scale | 400Vac L-N, 690Vac L-L (+20%) |
| Withstand | 1500Vac continuous 2500Vac, 50/60Hz for 1minute |
| Input Impedance | 2Mohm per phase |
| Metering Frequency | 45Hz~65Hz |
| Pickup Voltage | 10Vac |
| Accuracy | 0.5% |
| Energy Accuracy | |
| Active | (according to IEC 62053-22) classe 0.5s |
| | (according to ANSI C12.20) classe 0.5s |
| Reactive | (according to IEC 62053-23) classe 2 |
| Harmonic Resolution | |
| Metered Value | 2nd~31st harmonics |

| DIGITAL INPUT OPTION | |
|---------------------------|-----------------------|
| Digital Input (DI) | |
| Input Type | Dry Contact |
| Input Resistance | 4kΩ |
| Pulse Frequency (Max) | 100Hz, 50% Duty Ratio |
| SOE Resolution | 2ms |

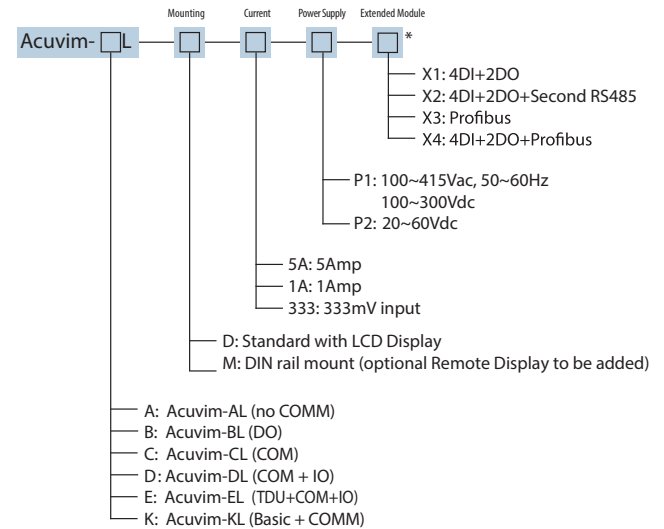
| DIGITAL OUTPUT OPTION | |
|----------------------------|----------------------|
| Digital Output (DO) | (Photo-MOS) |
| Voltage Range | 0~250Vac/dc |
| Load Current | 100mA (Max) |
| Output Frequency (Max) | 25Hz, 50% Duty Ratio |
| Isolation Voltage | 2500V |

| OPERATING ENVIRONMENT | |
|-----------------------|--------------------------|
| Operation Temperature | - 25°C to 70°C |
| Storage Temperature | - 40°C to 85°C |
| Relative Humidity | 5% to 95% non-condensing |
| Pollution Degree | 2 |

| CONTROL POWER | |
|--|---------------------------------|
| Universal AC/DC Control Power | AC or DC |
| Operating Range | 100~415Vac, 50/60Hz, 100~300Vdc |
| Burden | 3W |
| Withstand | 3250Vac, 50/60Hz for 1 minute |
| Low Voltage DC Control Power (Optional) | |
| Operating Range | 20 ~ 60VDC |
| Burden | 3W |

| STANDARD COMPLIANCE | |
|------------------------|---|
| Measurement Standard | IEC 62053-22 Class 0.2S, 62053-23 Class 2 |
| Environmental Standard | IEC 60068-2 |
| Safety Standard | IEC 61010-1, UL 61010-1, IEC 61557-12 |
| EMC Standard | IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22, IEC 61000-3-2, IEC 61000-6-2/4 |
| Outlines Standard | DIN 43700/ANSI C39.1 |

ORDERING INFORMATION



Acuvim-L Series Meter Ordering Example: Acuvim-EL - D - 5A - P1 - X2

* Note:

1. Extended Modules only supported by the Acuvim-DL and Acuvim-EL models.
2. Profibus module must be installed on the back of the meter FLRST before the other module is attached.

REMOTE DISPLAY OPTION

REM - ——— DS1: Compatible with Acuvim-L Series "M" (DIN Mount) models only

Remote Display Option Ordering Example: REM - DS1

ACCESSORY

IP66/NEMA4X ——— Environmental Protection Cover



Accuenergy Corporation

Los Angeles-Toronto-Beijing

North America Toll Free: 1-877-721-8908

Web: www.accuenergy.com

Email: marketing@accuenergy.com

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