

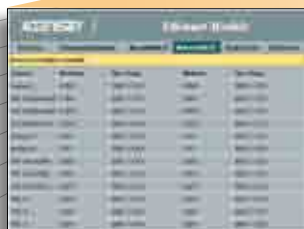
# Acuvim II

## Intelligent Power Meter (Web Accessible)



Email

Web & Email Setting



Max & Min Record



Real Time Metering

## DESCRIPTION

The Acuvim II is a high-end multifunction power meter manufactured by Accuenergy. It is the ideal choice for monitoring and controlling of power distribution systems. Some of the features and electric power parameters available on the ultra-compact Acuvim II are:

- True-RMS Measuring Parameter
- 4-Quadrant Energy
- Power Quality Analysis
- Over Limit Alarm
- Multi Communication Ports (Eg: Ethernet, Modbus)
- Web Server and Email Sending
- Switch Status Monitoring
- Remote Switch Controlling
- Module Design (E-Module® Technique)

Acuvim II may be used as a data gathering device for an intelligent Power Distribution System or Plant Automation System. All monitored data is available via a digital RS485 communication port running Modbus™ Protocol. Ethernet and Profibus DP communication are also options and with new wireless technologies and protocols currently under development, the applications for the Acuvim II meter are limitless.

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## Acuvim II Meter

CATEGORY		ITEM	PARAMETER	
METERING	REAL TIME METERING	Phase Voltage	V1, V2, V3, VInavg	
		Line Voltage	V12, V23, V31, Vllavg	
		Current	I1, I2, I3, In, Iavg	
		Power	P1, P2, P3, Psum	
		Reactive Power	Q1, Q2, Q3, Qsum	
		Apparent Power	S1, S2, S3, Ssum	
		Power Factor	PF1, PF2, PF3, PF	
		Frequency	F	
	ENERGY & DEMAND	Energy	Ep_imp, Ep_exp, Ep_total, Ep_net	
		Reactive Energy	Eq_imp, Eq_exp, Eq_total, Eq_net	
		Apparent Energy	Es	
		Demand	Dmd_P, Dmd_Q, Dmd_S	
	MONITORING	POWER QUALITY	Voltage Imbalance Factor	U_unbl
			Current Imbalance Factor	I_unbl
Voltage THD			THD_V1, THD_V2, THD_V3, THD_Vavg	
Current THD			THD_I1, THD_I2, THD_I, THD_Iavg	
Harmonics, Individual			Harmonics 2nd to 31st	
Voltage Crest Factor			Crest Factor	
TIF			THFF	
Current K factor			K Factor	
STATISTICS		MAX with Time Stamp MIN with Time Stamp		
OTHERS		ALARM	Over/Under Limit Alarm	
	COMMUNICATION	RS485 Port	Modbus™ Protocol	
	TIME	Real Time Clock	Year, Month, date, Hour, minute, Second	
OPTION MODULE	I/O OPTION	Switch Status (DI)	Digital Input (Wet)	
		Power Supply for DI	24 Vdc	
		Relay Output (RO)	NO, Form A	
		Digital Output (DO)	Photo-MOS	
		Pulse Output (PO)	By using DO	
		Analog Input (AI)	0(4)~20mA, 0(1)~5V	
		Analog Output (AO)	0(4)~20mA, 0(1)~5V	
	COMMUNICATION	Ethernet	10M/100M, Modbus-TCP, HTTP Webpage, Email	
		Profibus-DP	Profibus-DP/V0	

## I/O Module (Option)

Module Name	Digital Input (DI)	Power Supply For DI (24V)	Digital Output (DO)	Relay Output (RO)	Analog Input (AI)	Analog Output (AO)
AXM-IO1	6	1		2		
AXM-IO2	4		2			2
AXM-IO3	4			2	2	

## Communication Module (Option)

Module Name	Spec		
Ethernet	10M/100M self-adaptable, RJ45 Jack	Modbus-TCP/IP Protocol	Email sending on time interval or on event
Profibus	Profibus-DP/V0 Input Byte (typical): 32 byte	Output Byte (typical): 32 Byte	EN50170 vol.2 compliance
	Profibus slave mode, baud rate self-adaptable up to 12M		

## APPLICATIONS

- 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, Vlnavg, V12, V23, V31, Vllavg
- Current I1, I2, I3, In, Iavg
- 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, Ep\_total, Ep\_net
- Reactive Energy Eq\_imp, Eq\_exp, Eq\_total, Eq\_net
- Apparent Energy Es
- Demand Dmd\_P, Dmd\_Q, Dmd\_S

### Monitoring

- Power Quality
- Voltage Harmonics 2nd to 31st and THD
- Current Harmonics 2nd to 31st and THD
- Voltage Crest Factor
- THFF (TIF)
- Current K Factor
- Voltage Unbalance Factor U\_unbl
- Current Unbalance Factor I\_unbl
- Max/Min Statistics with Time Stamps

### Alarms

Limits can be set for up to 16 indicated parameters and can be set with a specified time interval. If any input of the indicated parameters 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 16 indicated parameters can be selected from any of the 44 parameters available.

### I/O option module

The E-module® technique was adopted for its flexibility and easy expansion of the I/O function of Acuvim II. A maximum of 3 modules can be used for one meter. Digital input, digital output, pulse output, relay output, analog input and analog output are provided by I/O option module.

### Communication

RS485, Industry standard Modbus™ protocol  
Module Option: Ethernet module, Profibus-DP module  
Dual communication ports

### Display

Clear and large character LCD Screen display with white back light  
Wide environmental temperature endurance  
Display Load percentage, 4 quadrants power and load nature

### Outline

Small Size 96×96 DIN or 4" ANSI Round

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## Typical Web Page From Acuvim II

The screenshot displays the Acuvim II web interface with several data tables:

### Max & Min Record

Channel	Maximum	Time Stamp	Minimum	Time Stamp
Volts AN	442.3 V	2006-10-11 17:30	0.0 V	2006-10-2 13:43:59
Volts BN	444.1 V	2006-10-11 17:32	0.0 V	2006-10-2 13:43:59
Volts CN	444.2 V	2006-10-11 17:32	0.0 V	2006-10-2 13:43:59
Volts AB	754.6 V	2006-11-5 11:41:8	0.0 V	2006-10-2 13:43:59
Volts BC	759.7 V	2006-11-5 10:33:0	0.0 V	2006-10-2 13:43:59
Volts CA	760.1 V	2006-11-4 18:55:2	0.0 V	2006-10-2 13:25:59
I A	11.913 A	2006-11-4 17:58:11	0.000 A	2006-10-2 14:14:48
I B	20.736 A	2006-11-5 9:32:47	0.000 A	2006-10-2 14:14:41
I C	11.053 A	2006-11-5 18:12:10	0.000 A	2006-10-2 14:14:47
Watt Total	11.410 kW	2006-11-5 9:15:29	-1.658 kW	2006-11-6 11:13:58
VAR Total	4.326 kVAR	2006-11-5 17:16:0	-3.753 kVAR	2006-11-5 17:51:49
VA Total	11.611 kVA	2006-11-5 9:15:21	0.000 kVA	2006-11-2 13:43:59
Pwr Factor Total	1.000	2006-10-2 13:22:44	-1.000	2006-11-6 11:41:34

### SOE Record

NO	Time Stamp	DI Status
NO1	2006-10-28 15:20:22.603	DI1-OFF DI2-OFF DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO2	2006-10-28 15:20:43.969	DI1-ON DI2-ON DI3-ON DI4-OFF DI5-OFF DI6-OFF
NO3	2006-10-28 15:20:43.969	DI1-ON DI2-ON DI3-ON DI4-ON DI5-OFF DI6-OFF
NO4	2006-10-28 15:20:43.969	DI1-ON DI2-ON DI3-ON DI4-OFF DI5-OFF DI6-OFF
NO5	2006-10-28 15:20:49.328	DI1-OFF DI2-ON DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO6	2006-10-28 15:20:49.328	DI1-OFF DI2-ON DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO7	2006-10-28 15:20:49.328	DI1-OFF DI2-OFF DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO8	2006-10-28 15:23:57.743	DI1-ON DI2-ON DI3-ON DI4-ON DI5-OFF DI6-OFF
NO9	2006-10-28 15:24:24.649	DI1-OFF DI2-ON DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO10	2006-10-28 15:24:34.345	DI1-ON DI2-ON DI3-ON DI4-ON DI5-OFF DI6-OFF
NO11	2006-10-28 15:24:18.126	DI1-OFF DI2-ON DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO12	2006-10-28 15:24:18.762	DI1-ON DI2-ON DI3-ON DI4-ON DI5-OFF DI6-OFF
NO13	2006-10-28 15:24:23.989	DI1-OFF DI2-ON DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO14	2006-10-28 15:24:26.241	DI1-ON DI2-ON DI3-ON DI4-ON DI5-OFF DI6-OFF
NO15	2006-10-28 15:24:36.536	DI1-OFF DI2-OFF DI3-OFF DI4-OFF DI5-OFF DI6-OFF
NO16	2006-10-28 15:20:19.239	DI1-OFF DI2-OFF DI3-OFF DI4-ON DI5-ON DI6-ON
NO17	2006-10-28 15:20:19.239	DI1-OFF DI2-OFF DI3-OFF DI4-ON DI5-ON DI6-ON
NO18	2006-10-28 15:20:19.239	DI1-OFF DI2-OFF DI3-OFF DI4-ON DI5-ON DI6-ON
NO19	2006-10-28 15:20:22.603	DI1-OFF DI2-OFF DI3-OFF DI4-ON DI5-OFF DI6-ON
NO20	2006-10-28 15:20:22.602	DI1-OFF DI2-OFF DI3-OFF DI4-OFF DI5-OFF DI6-ON

### Alarm Record

NO	Time Stamp	Limit ID	Status	Alarm Channel	Value
NO1	2006-11-19 14:30:51	1	Out	Frequency	0.00 Hz
NO2	2006-11-6 13:33:59.340	1	In	Frequency	60.53 Hz
NO3	2006-11-6 13:35:26.762	1	Out	Frequency	59.70 Hz
NO4	2006-11-6 9:11:34.837	1	In	Frequency	60.09 Hz
NO5	2006-11-6 9:12:9.48	1	Out	Frequency	59.60 Hz
NO6	2006-11-6 9:20:15.495	1	In	Frequency	60.00 Hz
NO7	2006-11-6 9:21:55.694	1	Out	Frequency	0.00 Hz
NO8	2006-11-6 9:22:35.511	1	In	Frequency	63.34 Hz
NO9	2006-11-6 9:22:49.199	1	Out	Frequency	0.00 Hz
NO10	2006-11-6 9:22:50.622	1	In	Frequency	65.04 Hz
NO11	2006-11-6 9:23:38.507	1	Out	Frequency	59.71 Hz
NO12	2006-11-6 9:28:56.913	1	In	Frequency	60.33 Hz
NO13	2006-11-6 9:29:32.880	1	Out	Frequency	59.46 Hz
NO14	2006-10-31 15:37:46.616	2	Out	Volts AN	0.0 V
NO15	2006-10-31 15:37:46.616	3	Out	I A	0.000 A
NO16	2006-10-31 15:37:46.616	4	Out	I C	0.000 A

### Energy & Harmonics

Delivered kWh	12.0 kWh	Total Absolute kWh	12.1 kWh	kWh	14.7 kWh
Received kWh	0.1 kWh	Total Net kWh	11.9 kWh		
Delivered kVARh	2.4 kVARh	Total Absolute kVARh	5.1 kVARh		
Received kVARh	2.7 kVARh	Total Net kVARh	0.9 kVARh		
THD Volts AN/AB	26.79%	THD I A	18.99%		
THD Volts BN/BC	26.39%	THD I B	19.00%		
THD Volts CN/CA	26.66%	THD I C	18.96%		
THD Volts average	26.61%	THD I Average	18.98%		