National Meter Industries, Inc.

GREEN RENEWABLE ENERGY METERING

CVM MINI Power Quality Analyzer

To satisfy our customers' needs, NMI offers the CVM MINI power meter, which measures, calculates, and displays main electrical parameters from any industrial three-phase, or single phase power system, either 2, 3 or 4 wire configurations.

Features:
Power supply circuit:
- Single-phase: 85 - 265 VAC
- Voltage tolerance:-15 % / +10 %
- Frequency:50 - 60 Hz
- Maximum consumption:3.0 VA
- Operating temperature:-10ºC …..+ 50ºC
-Humidity (without condensation):5% ….. 95%

Measurement circuit:
-Rated voltage: phase-neutral / between phases -300 V AC. / 520 V AC.
- Frequency:45 ~ 65 Hz
- Rated current:IN / 5 A or IN / 1 A
- Permanent overload:1.2 In
- Power consumption voltage circuit:0.7 VA
- Power consumption current circuit: ITF / Shunt 0.9 VA / 0.75 VA

Mechanical features:
- Casing material: IP 51
- Protection: IP 31
- Assembled equipment (front) & Non assembled equipment (sides and rear cover):
- Self extinguishing V0 plastic
- Dimensions (mm): 85 x 52 x 70 mm (3 step)
- Weight: 0.210 kg
- Voltage measure and supply wires: 1 mm²
- Secondary current transformers wires: 2.5 mm²
- Maximum altitude:2.000 m.

Output transistors features:
- Type: Opto-islolated transistor (open collector): NPN
- Maximum operating voltage: 24 V DC.
- Maximum operating current: 50 mA
- Maximum frequency: 5 impulses / second
- Impulse length: 100 ms

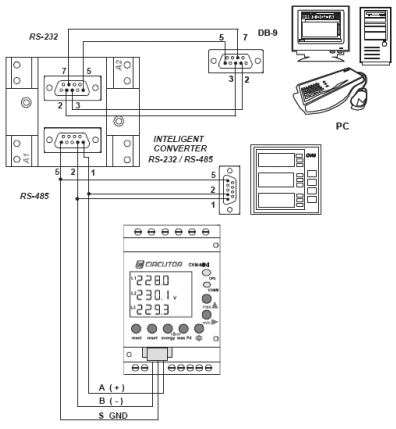
Communication Options:
Modbus RS485 RTU

Accuracy class:
- Voltage: 0.5 % ± 1 digit
- Current : 0.5 % ± 1 digit
- Power / Energy: 0.5 % ± 1 digit

Measurement loggers:
Current / Voltage / Power factor: 0.5 to 1
Scale range measurement margin: ITF 0.2 % ..... 120 %
Temperature sensor: ± 2ºC / -10ºC ….. +50ºC

Safety:
Category III - 300 V AC. / 520 AC. EN-61010 Class II double insulation against electric shock

Standards:
IEC 664, VDE 0110, UL 94, IEC 801, IEC 348, IEC 571-1, EN 61000-6-3,
EN 61000-6-1, EN 61010-1, EN 61000-4-11, EN 61000-4-2, EN 61000-4-3,
EN 61000-4-4, EN 61000-4-5, EN 55011



Digital Output Programming for Alarming / Trending

■ LIST OF VARIABLES AND ALARMS CODES FOR THE CVM-MINI

➢ If no variable is required enter No. par.= 00.

Parameter	Symbol	L1 Code	L2 Code	L3 Code
Voltage (phase-neutral)	*V*	01	06	11
Current	*A*	02	07	12
Active power	*kW*	03	08	13
Reactive power -(Ind/Cap)	*kvar*	04	09	14
Apparent power	*kVA*	38	39	40
Power factor	*PF*	05	10	15
% THD V	*THD V*	25	26	27
% THD A	*THD A*	28	29	30

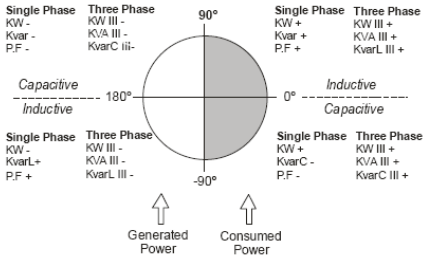
Parameter	Symbol	Code	Parameter	Symbol	Code
Three-phase active power	*kW III*	16	Neutral current	I_N	37
3 pha. inductive power	*kvarL III*	17	Max demand (L1)	*Md (Pd)*	35*
3 pha. capacitve power	*kvarC III*	18	Max demand (L2)	*Md (Pd)*	42*
cos φ three-phase	*cos φ*	19	Max demand (L3)	*Md (Pd)*	43*
3 pha. power factor	*PF III*	20	Active energy	*kW.h III*	31
Frequency (L1)	*Hz*	21	Inductive reactive energy	*Kvar·h L III*	32
V phase phase L1- L2	*V 12*	22	Capacitive reactive energy	*Kvar·h C III*	33
V phase phase L2 - L3	*V 23*	23	Apparent energy	*KVA·h III*	44
V phase phase L3 - L1	*V 31*	24	Active energy generated	*Kw·h III -*	45
Apparent power	*kVA III*	34	Inductive energy generated	*Kvar·h L III -*	46
Maximum demand	*Md (Pd)*	35	Capacitive energy generated	*Kvar·h C III -*	47
Three-phase current	*AIII*	36	Apparent energy generated	*KVA·h III -*	48
Temperature	ºC	41			

*Variables only valid if the Maximum Demand for current has been set per phase.

There are also some variables that refer to the three-phases at the same time. If one of these variables has been selected, the alarm will go off when any of the three-phases meet the preset conditions.

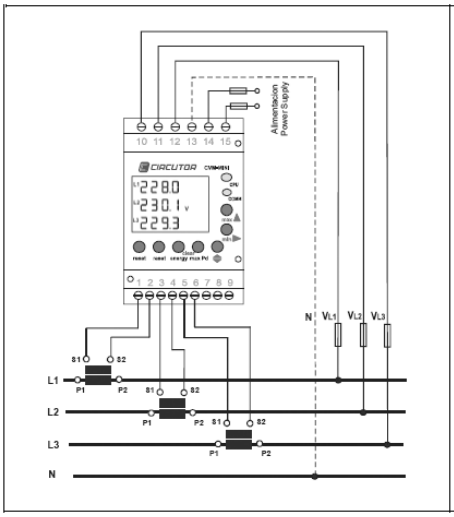
Parameter	Symbol	Code	Parameter	Symbol	Code
Voltages (phase-neutral)	*V1 or V2 or V3*	90	Power factors	*PF1 or PF2 or PF3*	94
Currents	*I1 or I2 or I3*	91	Voltages (phase-phase)	*V12 or V23 or V31*	95
Active powers	*kW1 or kW2 or kW3*	92	% THD V	*THDV1 or V2 or V3*	96
Reactive powers	*kvar1 or kvar2 or kvar 3*	93	% THD I	*THDI1 or I2 or I3*	97
Apparent powers	*kVA1 or kVA 2 or kVA 3*	98			

■ FOUR QUADRANTS OF THE CVM MINI

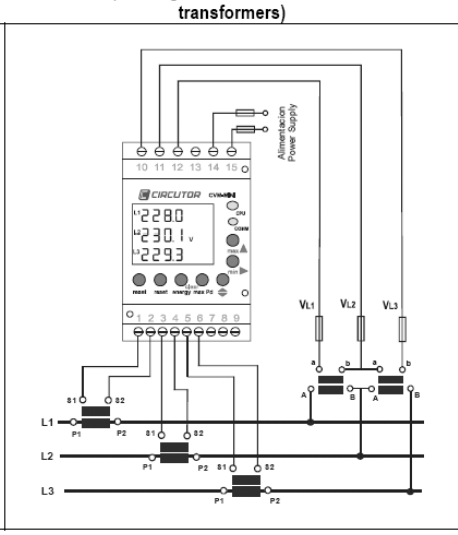


Wiring Diagrams

4 wire / 3 wire (low voltage)



3 wire (2 voltage transformers and 3 current transformers)



3 wire (2 voltage transformers and 2 current transformers)