Electronic KWH or KVarH Meter
Din panel, LED digital display Type

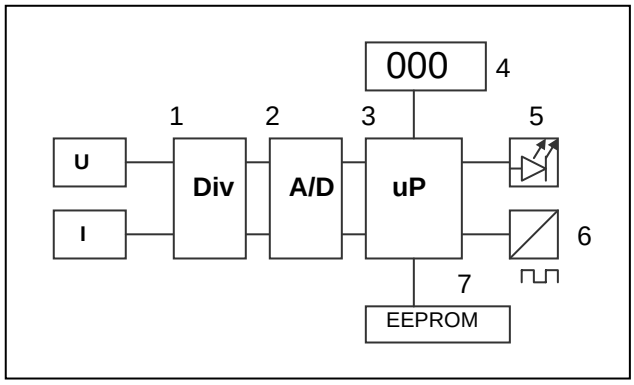
- Front Dimension 96x96mm.
- DIN43700, DIN43802, DIN43718, IEC1010, IEC473, IEC51, BS89
- Polycarbonate, self extinguishing and drip-proof per UL94V-0
- 8 digits with memory in case power failure.
- Accuracy ± 1.0 IEC1036
- 1Ph2W, 3Ph3W, 3Ph4W Unbal load.
- Rugged housing-non combustible, plastic-heat resistance.
- Optional analog output, pulse output, RS485
- Programmable CT max 6000/5A and PT max 600kV/100V

Application

The electronic electric meter registers energy consumption in alternating current systems. Its compact, rugged design allows for universal implementation in industrial systems, at construction sites, in the office, at leisure facilities and in the household. The meter can be mounted in any position. Installation of the energy meter at incoming power supply lines, distribution centers or directly at power consumers allows for the individual acquisition of energy data, as well as billing of energy costs.

This meters are intended for energy measurement with class 1 (EN 61036) and microprocessor controlled. 6 digit electromechanical register energy display which retains the value also in case of power failure. The meters with optionally pulse output are designed to send data directly to microprocessor based equipment. The pulse outputs for energy import allow for remote transmission of meter readings as well as for use in automatic billing systems, or for peak load optimization. Which can be programmed to control and save energy. Meters with pulse outputs are suitable for a wide range of applications including: energy management systems, maximum demand recorders, etc.
The energy meter perform accurately and directly measure active energy consumption and display total energy consumtion by step type impulse register or electro-mechanical digit display. Mordern designed with serveral features such: Good reliability, small volume, light weight, specious nice appearance, advance technics. Any position for installation, with anti-electromagnetism disturbance, low power loss, high accuracy, high overload, anti-steeling electricity and long life.

Block diagram



The energy meters with electromechanical register consists of seven block segments. A sampling method of voltages and currents with *AID* converter is used in the instrument. Voltages are connected via a voltage divider (1). Currents are electrically isolated with opto components circuit. A built-in microprocessor (3) calculates rms currents, rms voltages and active power at the end of a period from sample values of voltages and currents. Other quantities (apparent power,reactive power, power factor) are calculated from these values. A microprocessor with a quartz crystal assures exact calculation of energy from power. Data of the instrument are stored in EEPROM (7), therefore the instrument can be programmed without opening. Besides the data on the instrument version the calibration constants are stored in EEPROM. There are no setting components (trimmers) in the instrument which assures better long-term stability. A built-in current autorange assures accuracy also in case of small currents. High sampling rate enables measurement of distorted signals. Basic version of the instrument is provided with one electromechanical register (4). Pulse outputs (6) can be built in the instrument. The frequency of the pulse varies according to the energy consumed.

Technical Data

Voltage inputs
Voltage range : 100-600V
: PT rated 100, 110, 115, 120V
Primary : Programmable up to 600KV
Input impedance : >20 MOhm
Burden : max 0.2VA
Frequency : 45 - 65 Hz
Overload : 130% continuous., 200% / 3 sec.
Current inputs
Rated current (Ib) : 0-1A or 0-5 A
Primary : Programmable up to 6000A
Starting current : 0.4% Ib
Input impedance : 0.02 Ohm approximately
Burden : max 0.2 VA
Overload : 4In continuous, 20In / 3 sec., 40In / 1 sec.
Typical accuracy
Active Energy : Class1, IEC1036-1996
Reactive Energy : Class2, IEC61268-1995
Analog Output : Class 0.5, IEC668-1992
Display
Number of digits : LED 8 digits
Digit height : 10.4 mm.
Metric direction : Bi-directional
Insulation Test Voltage
Input _Output/Housing : AC 4 kV
Output _Housing : 500 V
Electrical Safety
Protection Class : II
Overvoltage Category : III IEC 1036
Allowable Contamination Level : 2
Electromagnetic Compatibility per IEC 1036
Surge Voltage : 6 Kv, 1.2/50 us (IEC 255-4)
Burst : 2 kV (DIN EN 61000-4-4)
Electromagnetic Fields : 10 V / m (DIN EMV 50141)
Electrostatic discharge : 15 Kv (DIN EN 61000-4-2)
Environmental conditions
Operating temperature : -10 ° C to +60 ° C
Storage temperature : -30 ° C to +80 ° C
Relative humidity : 95% max. without condensation
Mechanical characteristics
Material : NORYL UL94 V-0 self extinguishing plastic
Protection degree : IP54 (front panel); IP20 (terminals) EN60529
Terminals : Screw type 2.5mm.
Size : 96 x 96 x 115 mm
Weight : 500g.
Analog Output (Option)
Number of channels : 2 ch.
Type : 4-20mA or 0-5V
Resolution : 12 Bit DAC isolation
Output drive capability : <10mA for voltage mode
: < 10V for current mode
Output ripple : <0.5%
Serial interface (Option)
Type : RS485
Baud Rate : 2400, 4800, 9600, 19200
Protocal : Modbus
Data bits : 8 bits
Parity : Even, odd or none
Stop bits : Even & odd = 1

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Ordering Information

1) Model
DNS WH Meter Dimension 96x96
DNXS Varh Meter Dimension 96x96

2) System
E11: 1Ph 2Wire
E32: 3Ph 3Wire Unbalanced Load
E33: 3Ph 4Wire Unbalanced Load

3) Voltage
E11: 50, 100, 240, 380, 415, 440V or request
E32: 50, 100, 240, 380, 415, 440V or request
E33: 58/100, 63/110, 66.4/115, 69.3/120, 127/220, 220/380V or request
Or
PT Rated ? / 100,? / 110, ? / 115, ? / 120V & customize
? please specify when ordering

4) Current
CT Connection ? / 1A, ? / 5A
? please specify when ordering

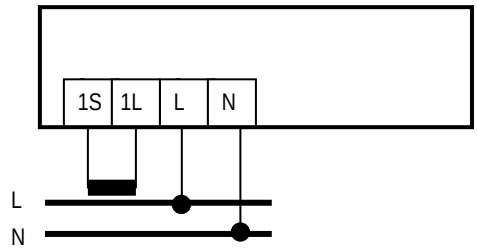
5) Accuracy
class 1.0

6) Option Accuracy
- Pulse output
- RS485

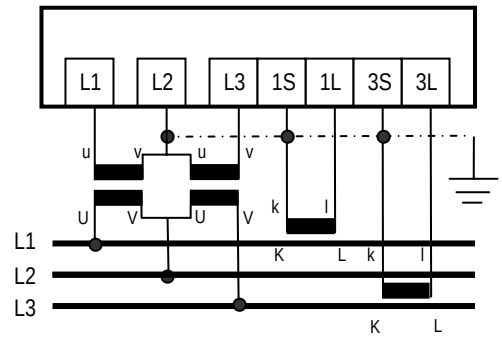
Example
1) DNS9000-E33 WH Meter Input 220/380 V, CT 100/5A, class 1.0

Wiring Diagram

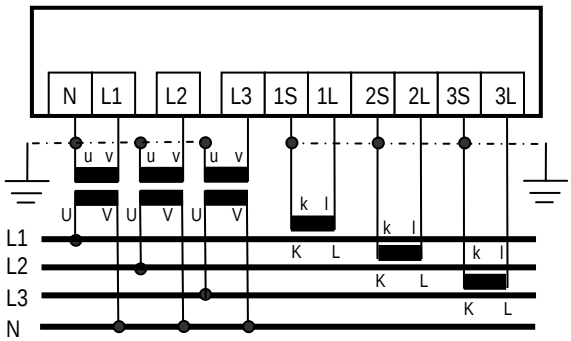
1Ph. 2Wire Watt Meter.



3Ph 3W Unbalanced Load



3Ph 4W Unbalanced Load (PT connection)



3Ph 4W Unbalanced Load (Direct connection)