

AMERICO

AMERICO BRAND SINGLE PHASE, 2 WIRE, BOTTOM CONNECTED ELECTRONIC WATTHOUR METER, REGISTER TYPE MODEL FS26

SPECIFICATIONS:

Rated Frequency: 60 Hz	Basic Current: 10(60) Amperes
Frequency Scope: 60Hz \pm 5%	Starting Current: 0.0002Ib
Rated Voltage: 240V	Accuracy Class 1.0
Operating Voltage Scope: +20% -30%	Ambient Temp: -25 ~65
Meter Constant: 1600imp/kWh	Maximum Relative Humidity: 100%
Power Consumption:	Display: 5 integers plus 1 decimal Register
Voltage Circuit 0.8W/2VA	Dimension: 192.5mm X 95mm X 57mm
Current Circuit 0.2VA	Weight: 0.5kg NET per unit
Quantity per Carton: 20 pcs.	11.8kg Gross weight per carton
Meets or Exceeds Standards Set under IEC 61036-2000	

WARRANTY STATEMENT:

The manufacturers of Americo Brand Electronic Kilowatt Hour Meters undertake to replace or repair, free of charge, at the sole option of the manufacturer, any Americo Electronic kWh Meter against factory defects and malfunction which are NOT brought about by misuse, mishandling, or abuse, within a period of 12 months from date of delivery, subject to the condition that manufacturer's seal shall be intact and undamaged upon claim. This warranty does not include other incidental costs and damages such as freight, handling charges, lost and foregone revenues, among others.

EDELL COMMERCIAL

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ADVANTAGES AND DISADVANTAGES BETWEEN THE OLD INDUCTIVE MECHANICAL WATTHOUR METER AND THE NEW AMERICO ELECTRONIC WATTHOUR METER

NO	THE DISADVANTAGES OF ELECTRO MECHANICAL WATTHOUR METER	ADVANTAGES OF USING AMERICO BRAND ELECTRONIC KWH METERS	BENEFITS TO THE ELECTRIC UTILITY
1	Electricity theft happens easily	Protection against stealing electricity	Reduction of Systems Loss
2	It is possible to reverse the register	This is not possible for LCD display (FS26A); for register display model (FS26), the latest anti-reverse register has been adopted	Protection against power theft, reduction of systems losses and increased revenues
3	Mechanical Meters are affected by strong magnetic interference	The electronic meters are least susceptible to magnetic interference, hence, are not affected by external magnetic fields.	Protection against power theft, reduced systems losses and increase in revenues
4	Error rate increases when meters are tilted.	Americo Electronic kWh Meters' error rates are not affected by meter tilting.	Increased meter accuracy resulting to reduced losses and higher revenues.
5	Yearly re-calibration of the meters are necessary.	Not necessary to calibrate the meter	Save the labor costs from meter calibration.
6	The self electricity consumption of the meter is bigger.	The self electricity consumption of the meter can be reduced by at least 50%	Save costs from the losses on watthour metering.
7	Impossible to control the electricity load of customers	Electricity load control functions are available	Increase the income from over load charges
8	The Accuracy Class 2.0 having an standard error rate of 2%	Standard Error Rating of Accuracy Class 1.0 Meters is 1%. Americo exceeds this specification and has achieved error rates better than 0.5%	Collect correct income and reduce loss from lower accuracy
9	Appearance looks awkward and bulky	Appearance looks exquisite and is of compact construction	Better Aesthetics Gives the Utility Better Image in the Eyes of the Public/Consumer
10	Difficult to realize the computer modernization.	It can realize computer modernization management.	Reduced labor costs in system management.

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> The Capacity Contrast Between Inductive Watt-hour Meter And The AMERICO BRAND Electronic Watt-hour Meter

- (1) **Power Consumption** The inductive meter has higher power consumption since much energy will be consumed to drive the rotator, while the consumption of electronic meters are usually less than 1W since rotators are not present in electronic meters.

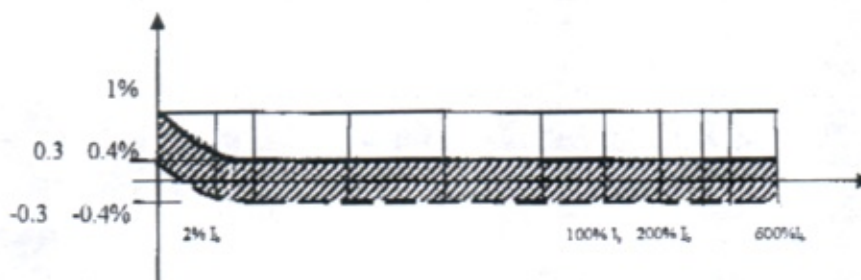
Type	Power Consumption
Americo Electronic Watt-hour Meter	0.6W
Other Electronic Watt-hour Meters	1.2W
Standard of Electronic Watt-hour Meter	2W
Inductive Watt-hour Meter	1.8W
Normal Induction Meter	2.2W
Standard of Inductive Watt-hour Meter	3.0W

Power consumption Comparison of Accuracy Class 2.0 Inductive Single-phase watt-hour meter and Accuracy Class 1.0 Electronic single-phase watt-hour meter

From the above table, we can see that the power consumption of Inductive single-phase meters is 1.2W higher than that of Americo electronic energy meters. Accounting for consumption in a 30 day period, each electronic single-phase meter will save 0.86 kW of power compared with the Inductive meter. Thus with a 100,000 meters installed base, a utility will save 86,000kW power each month.

The power consumption of electronic three-phase meter is about 3W, while the Inductive type is above 8W.

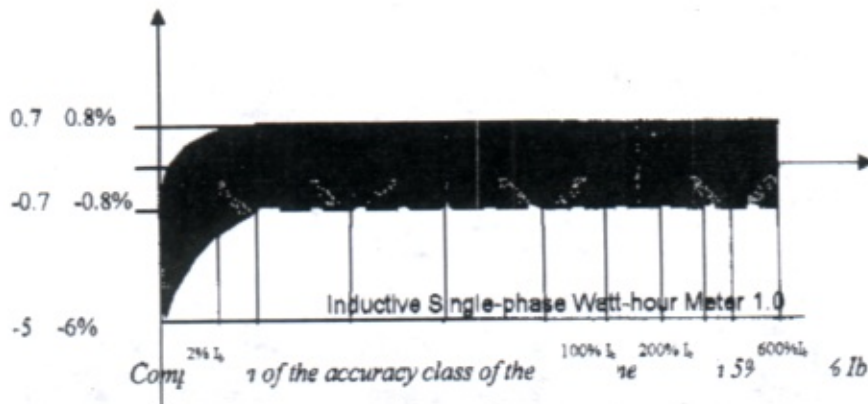
- (2) **Accuracy** The Accuracy Class Rating of inductive meters is 2.0 having a 2% error rate, while the Accuracy Class Rating for Americo electronic meters is 1.0, having an error rate of 1%. Americo has achieved error rates of 0.2% to 0.5%.



Electronic Single-phase Watt-hour Meter With Accuracy Class 1.0

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The error change of Americo electronic meters is smaller, normally round about +0.65%~0.2%, while the error change of inductive meters is much larger, normally round about +0.86%~5.7%. With light loads, the error rate of Americo electronic meters is positive oriented, while the inductive meters would be negative oriented with bigger error. When the load is below 10%Ib, the difference of error rate between inductive meter and electronic meter is -3%. If a meter with 10%Ib is working for 8 hours per day, 0.8kWh will not be measured each month.

- (3) **Anti-tamper** For inductive meters, as the rotator is driven by an electromagnetic field, energy could be easily stolen by short-circuiting the phase line in and phase line out, inverse connection, external electromagnetic field influence, meter tilting etc. However, for Americo electronic meter, as a current manganin shunt with tiny resistance (only about 350v) is adopted for input current sampling across between phase line in & phase line out, tampering by way of short-circuiting between phase line in & phase line out won't work as the resistance of the short-circuit wire plus wire contacted resistance should be much higher than that of manganin shunt so that the input current won't be divided by the short-circuit wire but would still run into the meter for normal measuring. Additionally, as our electronic meter adopts double direction measurement, it would not be possible to commit tampering by way of reversing direction of measurement. As for other forms of tampering such as external electromagnetic field influence, meter tilting etc, Americo electronic meters have been designed to safeguard against the ill effects of such practices.
- (4) **Calibration** Mechanical fraying lowers the rotating speed of inductive meters which in turn causes a decline in accuracy. Thus, the inductive meter has to be calibrated each year for accuracy adjustment by electric utility, which in turn adds a lot of labor costs. As the Americo electronic meter has no mechanical fraying coupled with its anti-vibration ability, high accuracy, good stability, and good linearity, its calibration cycle is 10 years, thus saving a lot on labor cost for the electric utility.
- (5) **Failure Rate** As Americo electronic meters have adopted large scale IC circuit, it is smaller and has no mechanical fraying under static working condition. Meanwhile, with the research and development &

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improvement of design technique and component quality, the failure rate of the Americo electronic meters has been reduced dramatically. Since inductive meters are working under dynamic conditions, many mechanical parts will be frayed easily.

- (6) **Weight, Volume, Anti-vibration and Transport** Due to the rough cover, higher weight and weak anti-vibration ability, the accuracy of inductive meter will often be changed greatly during transport from one place to another, so it's very inconvenient for delivery. But for the electronic meter, as iron cover and metallic components are not used, it is smaller and lighter making it easy to transport plus with its strong anti-vibration ability, its accuracy and performance are not affected during transport.
- (7) **Load Control** Inductive meter has no intelligent function and can hardly control load. But for electronic meters, the load is controllable in some models. When the maximum load is beyond load threshold, the meter will trip automatically. The user has to apply for larger capacity with the electric utility. This way, not only the safety of lines can be assured but also the corresponding charge for enlarging capacity can be collected in time.
- (8) **Load, Voltage, Current, Frequency and Temperature Feature Curve** The changes of above mentioned parameters has huge effect on the error rate of inductive meter but has little effect on the accuracy rating of Americo electronic meters.
- (9) **Sensitivity** Americo Electronic meters have superior sensitivity than the inductive meters. When mobile phones are charged, for example, inductive meters are unable to register the power consumption of such an activity especially when the over all load is very minimal. With Americo Electronics Meters, these consumptions are accumulated and recorded until they register as one pulse.
- (10) **Running With No Load** Under the condition of rated voltage and no load current, inductive meters has latent running which doesn't happen in Americo electronic meters.
- (11) **Multi-function And Intelligent Management** Because of the limitation of design principle, inductive meter can not be combined with the electronic technology especially with the computerized infrastructure to meet the requirements of intelligent management such as multi-rate measuring and remote controlled concentrated meter reading as examples. On the other hand, Americo electronic meters can integrate many functions enabling its users to realize multiple functionality and uses for the meter and plays an important role in power generation, automatic control in energy consumption management, remote meter reading, load control, energy prepayment and multi-rate measurement and billing. It can also combine with advanced technology to realize multi-function & intelligent management.

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REPUBLIC OF THE PHILIPPINES
OFFICE OF THE PRESIDENT
ENERGY REGULATORY COMMISSION
PASIG CITY

No. 188883 MM-LA

REPORT OF SINGLE PHASE ELECTRIC WATTHOUR METER TESTS

Date: 28 JUNE 2003
 Operator/Owner: AMMICO Pres: LAB
 Address: 1000 10th Ave. Pasig City Nature of Test: Initial/General
 Reg. No.: 1000 10th Ave. Pasig City Dial Constant: 1 Dial Test: 1000 Creeping: 0 Creeping Rate: 0
 SERIAL NO.: 020502967 AS FOUND COMPANY NO.: _____ Meter Condition: New/Old
 Seal Pressor No.: _____ Reading: _____

AMPERE LOAD	TEST RATIO		ACTUAL RATIO		CORRECTION FACTOR	PERCENT ACCURACY	AVERAGE % ACCURACY	% ERROR
	METER	STANDARD	METER	STANDARD				
LL	<u>2</u>	<u>1.25</u>	<u>2</u>	<u>1.25</u>	<u>99.70</u>	<u>99.70</u>	<u>99.270</u>	<u>-0.729</u>
FL	<u>10</u>	<u>6.05</u>	<u>10</u>	<u>6.05</u>	<u>99.73</u>	<u>99.73</u>	<u>99.730</u>	<u>-0.265</u>
Average Error: _____								

Remarks: _____
 Seal Pressor No. 3-283-020 AS LEFT Reading: 0.9

AMPERE LOAD	TEST RATIO		ACTUAL RATIO		CORRECTION FACTOR	PERCENT ACCURACY	AVERAGE % ACCURACY	% ERROR
	METER	STANDARD	METER	STANDARD				
LL								
FL								
Average Error: _____								

DATA ON STANDARD INSTRUMENT USED DURING THE ABOVE TEST

Watt-hour Meter Standard Make and No. H-D 70 # 260197 FLC 10 Voltage: 120/240/480
 Light Load Rating Used: _____ Amps Heavy Load Rating Used: _____ Amps
 Remarks: Tested _____ Scaled _____ Rejected _____ Loading Device: PHANTOM LOAD

TESTED IN THE PRESENCE OF: _____
 CHECKED BY: _____ TESTED BY: [Signature]



CERTIFICATION

TO WHOM IT MAY CONCERN

This Certificate of Accreditation is issued to **AVS & Sons Trading Corporation** with postal address at 9570 Jaime Street, Airport Village, Parañaque City.

<u>Product/s</u>	<u>Type</u>	<u>Model</u>
Kwh Meter	Americo Electronic Watt-Hour Meter	FS 26 - FS 26A Register LCD

*** Nothing follows ***

Unless terminated earlier for valid cause(s), this certificate is valid for one (1) year and will expire on 15-August 2004.

Given this day 15th of August 2003 at NEA Central Office, 6th flr. NIA Road, Government Center, Diliman, Quezon City.

For and In-Behalf of
Accreditation Committee:

Diosdado C. Celzo
DIOSDADO C. CELZO
Chairman