METER DATA COLLECTION SERVICES

KILOWAZE CLASS 200 ANSI Smart Meter

System Overview

The **KILOWAZE** smart electricity meter is the measurement heart of the MDCS low cost AMI energy measurement solution.

The meter, in conjunction with a wireless network, provides a cost effective and easy to use electricity measurement and reporting solution for utilities of all sizes.

The meter accurately delivers data on 14 measured variables at intervals from 1 minute to 1 month. **KILOWAZE** accuracy is certified to ANSI class .5% but actual results are commonly found to measure .02% accuracy.

Measurement data is delivered via the Long Range data network or by on-board WiFi. In addition, the meter is capable of **power outage reporting** to improve quality of service and has a built-in relay to facilitate **remote disconnect** and minimize service calls.

The **KILOWAZE** meter far exceeds US safety and performance requirements as specified by ANSI.

Measured Values

Active:
Power (kW), Demand (kW), Energy (kWh) (+/-)
Reactive:
Power (kVAR), Demand (VAR)d), Energy (kVARh) (+/-)
RMS Voltage, RMS Current
Frequency, Power Factor and Temperature

6 Alarm Conditions Reported
Power Out, Relay Open, Over Temp,
Over/Under Voltage, Over Current,
Software/Hardware Fault.

The KILOWAZE smart meter is low cost

The integrated digital design of the **KILOWAZE** meter is a result of 30 years of rich experience in meter metrology. From component selection to packaging, the **KILOWAZE** meter is ready for high volume, repeatable accuracy. The thoroughness of the development team coverage of this design yields a dependable product at a cost model that challenges any competitor.

The **KILOWAZE** meter has sophisticated electronics to measure 14 different variables in the meter. The instantaneous readings are stored in NV RAM and are shown in the table on the right.

The table below shows a read out of the data sent from the meter via WiFi or LPWAN

MeterSN: Detail

MeterSN	TimeStamp	Status	V	Current	PF	Temp	Active				Reactive			
			Volts	Amperes	Φ	Deg.C	kWh F	kWh R	W	WD	kVARh C	kVARh I	VAR	VARD
1717A	2018-07-08 08:05:00	HH	125.447617	0.008442	0.300580	32.734875	0.045100	0.000000	0.327031	1.200020	0.029900	0.000000	-0.384649	1.199998
1717B	2018-07-08 08:05:00	HH	0.000000	0.000215	1.000000	34.113800	0.007500	0.000000	-0.000397	1.199998	0.006300	0.000000	-0.000795	0.799999

Security

All meters have 3 levels of password encryption and are compliant with 128 bit AES standards.

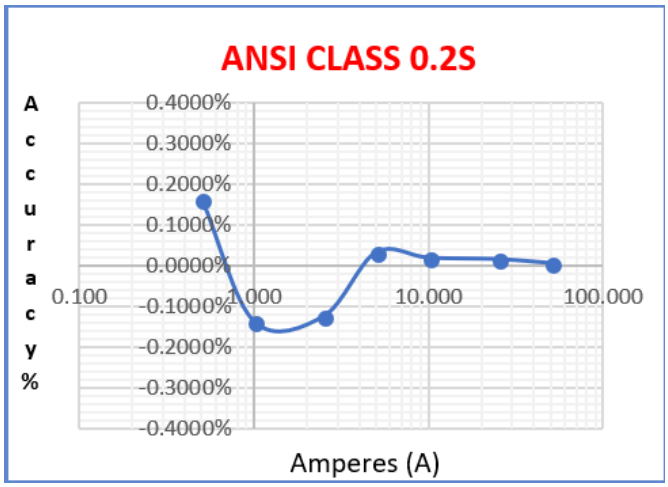
Accuracy

The accuracy of the KILOWAZE meter far exceeds the ANSI certification parameters. Although, certified to .5% accuracy, it is not uncommon to find the KILOWAZE meter reading .02% accuracy readings.

TEST RESULTS - PERCENT ERROR

IB 50.000

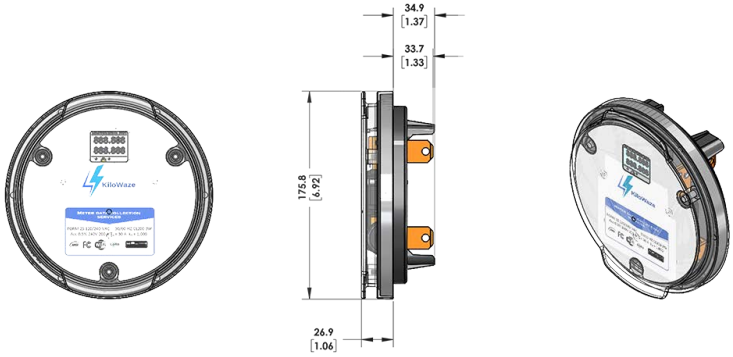
IB	AMPERES	TEST1	TEST2	TEST3	AVE
1	50.000	0.0111%	0.0000%	0.0055%	**0.0053%**
0.5	25.000	0.0111%	0.0055%	0.0277%	**0.0148%**
0.2	10.000	0.0183%	0.0183%	0.0183%	**0.0183%**
0.1	5.000	0.0316%	0.0316%	0.0305%	**0.0313%**
0.05	2.500	-0.1250%	-0.1250%	-0.1260%	**-0.1250%**
0.02	1.000	-0.1190%	-0.1170%	-0.1790%	**-0.1380%**
0.01	0.500	0.1632%	0.1626%	0.1632%	**0.1630%**
				AVERAGE	**-0.0043%**
				STD	**0.00102199**



Benefits of the MDCS Solution

1. Lower Cost of Meter hardware: Smart AMI technology at the cost of an electro-mechanical meter
2. KILOWAZE has sophisticated electronics to measure 14 different variables
3. Accuracy far exceeds the ANSI certification parameters.
4. Remote disconnect allows Utilities to turn off meters that are not being paid.
5. Immediate power outage reporting to improve quality of service
6. All meters meet 128 bit AES security protocols.
7. Network setup and installation requires no capital expenditure
8. Multiple options to retrieve meter data

KILOWAZE Specifications



Dimensions & Display

Type:	Two Pole, Two-wire, Four Quadrant
Form:	2S
Volts:	1 or 2 Phase, 120 VAC L-N, 240 VAC L-L
Frequency:	50 / 60 Hertz
Current:	200 A per Phase Max
External CT:	Current : 50A
Accuracy:	.5 %
Pulse constant:	1,000 Imp. /kWhr

ANSI

Meets or exceeds ANSI	C12.1, C12.10 1 C12.20, C37.90.
Accuracy to ANSI C12.2	CA 0.5
Actual active energy	Within +/- 0.5 %
Starting current	0.05 A
Creeping current	0 current / < 1 pls
Power consumption - Active power	0.7 W
Power consumption - Apparent power	1.5 VA
Power consumption - Current circuit	0.15 VA
Insulation strength	4 kV for 1 min
Pulse voltage to ANSI 62.41	8 kV
Protection class	IP54, Class II Double Insulated

Temperature Range to IEC62052-11

Operation	-45 °C to +80 °C
Storage	-45 °C to +85 °C
Humidity (non-condensing)	0% to 95%

Electromagnetic Compatibility

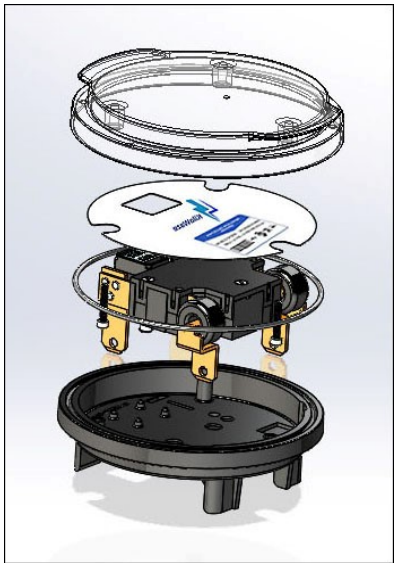
Electrostatic discharge – Contact	15 kV
Electrostatic discharge - Air discharge	8 kV
Electromagnetic RF Fields (IEC 61000-4-3):	Minimum: 10 V/m Typical: 30 V/m
RFI Suppression IEC/CISPR 22 / FCC	Class B
Fast transient burst to IEC 61000-4-4	2.5 kV
Fast transient surge to IEC 61000-4-5	6 kV

Real Time Clock and Time of Use

Tariffs	Up to 8 per day
Calendar	5 year programmable
RTC accuracy	< 5 ppm at 23 °C +/- 0.5 sec/day (Updated daily)

Relay Specifications

IEC AND DIN	EN 61810-1 VDE 0435 part 201
IEC and DIN overload and short circuit	EN61036-31/37
Contact material	AgSnO2
Rated switching power	50 kVA
Maximum switching voltage	300 VAC
Maximum switching current	300 A
Mechanical life	30,000 make/break
Test voltage	4,000 VAC
Dielectric strength	12kV
OperatingTemperature	-40C to +80C
Storage Temperature	-45C to +85C



Communications Interface

LPWAN (USA)	LoRA902-928MHz
WiFi	IEEE 802.11n Access Point, Internal / External
Optical	Serial / Pulse Sensor

Case Material

Base and cover	Poly Carbonate +10% Glass Filled Sabic Lexan 503R .

Contents subject to change without notice.
Check for latest version at Meterdcs.com

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