GENERIC SPECIFICATION FOR
MULTIFUNCTION POWER AND ENERGY TRANSDUCER
SHARK ® 100T TRANSDUCER

2. PRODUCT

2.1 POWER TRANSDUCERS

A. The transducer shall be UL listed and CE marked.

B. Power transducer shall be designed for Multifunction Electrical Measurement on 3 phase power systems.

1. Transducer shall support 3 element Wye, 2.5 element Wye, 2 element Delta, 4 wire Delta systems.
2. The transducer shall accept universal voltage input.
3. Surge withstand shall conform to IEEE C37.90.1
4. The transducer shall be user programmable for voltage range to any PT ratio.
5. Transducer shall not exceed a burden of up to .36VA per phase, Max at 600V, 0.014VA at 120 Volts.
6. The transducer shall accept a voltage input range of up to 416 Volts Line to Neutral, and a range of up to 721 Volts Line to Line.
7. Transducer shall accept a current reading of up to 11 amps continuous.

C. Power transducer shall use a dual input method for current inputs. Method one shall allow the CT to pass directly through the transducer without any physical termination on the transducer, ensuring the transducer cannot be a point of failure on the CT circuit. The second method shall provide additional termination pass-through bars, allowing the CT leads to be terminated on the transducer. The transducer must support both termination methods.

1. Fault Current Withstand shall be 100 Amps for 10 seconds, 300 Amps for 3 seconds, and 500 Amps for 1 second.
2. Transducer shall be programmable for current to any CT ratio. DIP switches or other fixed ratios shall not be acceptable
3. Transducer shall not exceed a burden of 0.005VA per phase, Max at 11 Amps.
4. Transducer shall begin reading at a 5mA pickup for current, energy and power.
5. Pass through wire gauge dimension of 0.177” / 4.5 mm shall be available.
6. All inputs and outputs shall be galvanically isolated to 2500 Volts AC.
7. The transducer shall accept current inputs of class 10: (0 to 11) A, 5 Amp Nominal, and class 2 (0 to 2) A, 1A Nominal Secondary.

D. The transducer shall have an accuracy of +/- 0.1% or better for volts and amps, and 0.2% for power and energy functions. The transducer shall meet the accuracy requirements of IEC687 (class 0.2%) and ANSI C12.20 (Class 0.2%).

1. The transducer shall provide true RMS measurements of voltage, phase to neutral and phase to phase; current, per phase and neutral.
2. The transducer shall provide sampling at 400+ samples per cycle on all channels measured readings simultaneously.
3. The transducer shall utilize 24 bit Analog to Digital conversion.
4. Transducer shall provide Harmonics %THD (% of Total Harmonic Distortion).
5. Transducer shall provide alarm thresholds for Volts, Amps, kW, kVAR, PF, kVA, Freq., kWh, kVAh, and kVARh.

E. The transducer shall mount directly to a DIN rail and provide RS485 Modbus or DNP 3.0 output.

F. Power transducer shall include virtual measurement upgrade packs, which shall allow user to upgrade in field without removing installed transducer.

1. Four upgrade packs shall be:
    a. Volts and Amps Transducer – Default
    b. Volts, Amps, kW, kVAR, PF, kVA, Freq.
    c. Volts, Amps, kw, kVAR, PF, kVA, Freq., kWh, kVAh, kVARh and DNP 3.0.
    d. Volts, Amps, kW, kVAR, PF, kVA, Freq., kWh, kVAh, kVARh, %THD Monitoring, Limit Exceeded Alarms and DNP 3.0.
2. These virtual upgrade packs must be able to be updated without physically removing the installed transducer.
3. Transducer shall be a traceable revenue transducer, which shall contain a utility grade test pulse allowing power providers to verify and confirm that the transducer is performing to its rated accuracy.

G. The transducer shall provide user configured fixed window or rolling window demand. This shall allow user to set up the particular utility demand profile.

1. Readings for kW, kVAR, kVA and PF shall be calculated using utility demand features.
2. All other parameters shall offer max and min capability over the user selectable averaging period.
3. Voltage shall provide an instantaneous max and min reading displaying the highest surge and lowest sag seen by the transducer.
4. Alarm limits shall be user settable points, which give indication if current value of point has exceeded limit. The transducer shall have 2 points, each of which shall have a hysteresis point. Limit value shall be defined as percentage of full scale.

H. The meter shall have RS485 plus pulse standard.

I. The meter shall have optional 100BaseT Ethernet communication capability.

1. Ethernet communication shall consist of Modbus protocol over TCP/IP.

J. The transducer shall support power supply rating of 90 to 265 Volts AC and 100 to 370 Volts DC. Universal AC/DC Supply shall be available.

1. Transducer power supply shall accept burden of 10VA max.
2. Transducer shall provide upgrade rate of 100msec for Watts, Var and VA. All other parameters shall be 1 second.

K. The transducer shall have a standard 4-year warranty.

L. Power transducer shall be able to be stored in (-20 to +70) degrees C.

1. Operating temperature shall be (-20 to +70) degrees C.

M. The following options shall be available for ordering:

	Model	Frequency	Current Class	V-Switch Pack	Communication
Options	Shark 100T				
	Shark 100T	-50: 50 HZ System -60: 60 HZ System	-10: 5 Amp Secondary -2 : 1 Amp Secondary	-V1: Default V-Switch Volts/Amps -V2: Above with Power and Freq. -V3: Above with Energy Counters -V4: Above with Harmonics and Limits	-INP10: 100BaseT Ethernet

N. Acceptable product is Electro Industries/GaugeTech, Model Shark ® 100 Transducer.

1. Add the following suffixes for added options:
   a. (9PINC) – RS232 Cable
   b. (Unicom 2500) – RS485 to RS232 Converter
   c. (Unicom 2500-F) – RS485 to RS232 to Fiber Optic Converter
   d. (Modem Manager, Model #, MM1) – RS485 to RS232 Converter for Modem Communication
   e. (CCal) – This provides Certificate of Calibration with NIST traceable test data.
   f. (CT200K) – 200/5 Ratio, 1” Window 3 CTs

i. (CT400K) – 400/5 Ratio, 1.25” Window, 3 CTs
j. (CT800K) – 800/5 Ratio, 2.06” Window, 3 CTs
k. (CT2000K) – 2000/5 Ratio, 3.00” Window, 3 CTs
l. (COMEXT3) – CommunicatorEXT 3.0 for Windows

2. For specification information, contact:

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