

SUNSHUBH TECHNOVATIONS PVT LTD

#402, Hill view apartment, 2nd Cr, Adarshnagar, HUBLI-580 032, Karnataka, INDIA
Germany off: NeuerWeg 166, 47803 Krefeld, Dusseldorf.

WATER	ENERGY	POLLUTION	ORGANIC
Harvesting	Efficiency	Minimize	Farming
Conservation	Conservation	Eliminate	Worm compost
Management	Generation	Manage	Benefits
Regd: Certified Energy Auditors. GOI (EA 3485), Germany: Anbieter-Nr 1041388			



www.sunshubh.com, Email: ceo@sunshubhrenewables.com, Ph: 94492 83505, 94490 33505

CIN : U74999KA2020PTC136321, PAN:ABECS0250Q, TAN:BLRS77362F GST No: 29ABECS0250Q1ZX

Sl. No.	INSTRUMENT	MAKE	APPLICATION
1	Pulley belt tension scale	Bestorq	<p>Setting pulley belt for optimum power transmission.</p> <p>Proper Belt Tension The proper tension for operating a V-belt drive is the lowest tension at which the belts will not slip at peak load conditions. For applications without a variable frequency drive (VFD) or starter, and the motor is "ran across the line", the tension must be able to handle the increased motor torque during startup. For slow start VFD applications, the belt tension must handle the actual brake horsepower of the fan at the fan shaft. For V-belts, after initial installation tensioning, a re-tensioning of the belt is recommended after a period of operation, usually one to two days. Belt tension should be checked periodically, about every three to six months. A more frequent inspection for noise or vibration is recommended. Under-tensioned belts can slip, generating heat that often results in cracking and eventual belt failure. Over-tensioned belts will create excessive stretching in the belt and reduce both belt and bearing life as the bearing loads will increase. While checking the belt tension, the belts should also be inspected for any cracks or fraying as these indicate belt wear.</p>
2	Thermal Imager with Clamp on ammeter	TESTO 872	<p>Identifying energy loss through heat emission/ leak and related current flow in electrical systems.</p>
2a	Infrared Thermal Imaging Cameras	Flir (Two Nos)	<p>Thermographic cameras have slowly migrated into other fields as varied as medicine and archeology. More recently, the lowering of prices has helped fuel the adoption of infrared viewing technology. Advanced optics and sophisticated software interfaces continue to enhance the versatility of IR cameras.</p> <ul style="list-style-type: none"> Fault diagnosis and troubleshooting Energy auditing of building insulation and detection of refrigerant leak.

LIST OF INSTRUMENTS AVAILABLE (OWNERSHIP) AS ON DATE FOR ENERGY AUDIT.

All equipment's are calibrated by the original suppliers and updated based on assignments. Whenever necessary, NABL Calibration shall be obtained.

Listed in order of (cluster) application. We do not believe in hiring the instruments.

Sl. No.	INSTRUMENT	MAKE	APPLICATION
			<ul style="list-style-type: none"> • Roof inspection • Home performance • Moisture detection in walls and roofs (and thus in turn often part of mold remediation) • Masonry wall structural analysis • Program process monitoring • Quality control in production environments • Predictive maintenance (early failure warning) on mechanical and electrical equipment • Inspecting photovoltaic power plants • Agriculture, • Building inspection
3	Earth resistance meter – DET 2/3	Meggar	To assess effective grounding of assets which are susceptible to electric shock, high voltage fluctuations, Harmonics, Lightening protection and to check fault leakage current.
3a	Earth leakage current DECT 3	Motowane	Residual Current Measurement.
4	Energy monitoring system (set of 10 meters with RS485 communication system)	Janitza	Load balancing and On line monitoring of energy from remote locations. Energy monitoring device which allows you to monitor and control energy consumption of various devices in offices and industries in real-time.
5	Power Analyzer – UMG 509. High accuracy in compliance with ISO 50001, Class 0.2	Jenitza	Detailed energy consumption evaluation, tracking and fact finding over the events. Correlate to assets failures or shortcomings in the process.
6	Power Analyzer – UMG 512. High accuracy in compliance with ISO 50001, Class 0.2	Jenitza	
6a	RCM meter (Residual Current Measurement)	Janitza	Incomer Power Cable residual current measurement. Condition monitoring of cable faults. safety is also of the utmost importance. Defective systems can not only disrupt production processes, but also lead to personal injury. In Germany the German

LIST OF INSTRUMENTS AVAILABLE (OWNERSHIP) AS ON DATE FOR ENERGY AUDIT.

All equipment's are calibrated by the original suppliers and updated based on assignments. Whenever necessary, NABL Calibration shall be obtained.

Listed in order of (cluster) application. We do not believe in hiring the instruments.

Sl. No.	INSTRUMENT	MAKE	APPLICATION
			<p>Social Accident Insurance (DGUV) takes this into account and released the regulation 3, which provides for a regular inspection of the production plant. Part of this so-called repeat test is always the insulation test, which is often very time-consuming and therefore cost-intensive. According to the manufacturer's information, individual devices in the overall system such as frequency converters or switching power supplies are disconnected for this test, as these can be damaged by the standard insulation test. In addition, the system must be switched off for the measurement of the insulation resistance.</p> <p>Residual current monitors can also offer significant added value for the company here, because the current international standard IEC 60364-6 (Edition 2.0 - 2016-04) expressly states that measurement of the insulation resistance in the periodic verification can be replaced by a residual current monitoring device in accordance with IEC 62020 which monitors permanently the residual current in conjunction with continuous maintenance by qualified electricians.</p> <p>A third area of application of the RCM is the protection of production plants against fire. Around 30 percent of all registered fires can be traced back to faults or defects in electrical systems. The protection via a RCD with 300 mA can often lead to false tripping due to the very high system-related residual currents of the system. This is where IEC 60364-4-42:2010+AMD1:2014 comes into play, stating that residual current monitors may be used in conjunction with a circuit breaker to avoid electrically ignited fires due to insulation faults to shut down the system if residual current protective devices (RCDs) are ruled out for technical reasons.</p>

LIST OF INSTRUMENTS AVAILABLE (OWNERSHIP) AS ON DATE FOR ENERGY AUDIT.

All equipment's are calibrated by the original suppliers and updated based on assignments. Whenever necessary, NABL Calibration shall be obtained.

Listed in order of (cluster) application. We do not believe in hiring the instruments.

Sl. No.	INSTRUMENT	MAKE	APPLICATION
7	Digital Power ALM 10 Analyzer	Schivan Arnox	Electrical Machinery – Spot verification.
7a	Accessories -3000 Amps	Arnox	Higher load UPTO 3000 Amps.
7b	Accessories -200 Amps	Arnox	UPTO 200 Amps
8	Power Analyzer (Manual)	Meco	Electrical Machinery– Spot verification.
9	Digital KW Meter	Metravi	Electrical Machinery.
10	Digital Power Factor Meter	Metravi	Electrical Machinery.
11	PT's for Transformer audits.	Kalpa	On field auditing of 11KV transformer evaluation.
12	Torque Meter	Binsfield	Quality check of Rewound motors and condition assessment of large sized motors. The torque meter serves for detection of any loose coupling and loss of torque as well as for tightening of screws.
13	Lux Meter	Metravi	General & Task Lighting. Lux meters are used for measuring brightness in lux, fc or cd/m ² . The measurement of light intensity with a lux meter is becoming increasingly important in the workplace due to safety concerns more so with LEDs replacing ENCONs.
14	Live cable detector probe	-	Identifying live cables & Cable safety audit.
15	Digital (Contact) Temperature & Humidity Meter.	Metravi	Indoor air Quality. (A/C's and Cooling Towers).
16	TVOC meter	Exatech	Presence of chemicals.
17	Indoor Air quality logger	TEM TOP M2000	CO ₂ , PM _{2.5} ppm count, Temp, Humidity and HCHO recorder
18	Portable Vibration Meter.	Metravi	Structural Stability measurement. Identifying loose points and confirming originating point of vibration.

LIST OF INSTRUMENTS AVAILABLE (OWNERSHIP) AS ON DATE FOR ENERGY AUDIT.

All equipment's are calibrated by the original suppliers and updated based on assignments. Whenever necessary, NABL Calibration shall be obtained.

Listed in order of (cluster) application. We do not believe in hiring the instruments.

Sl. No.	INSTRUMENT	MAKE	APPLICATION	
19	Flow Meter (Ultra Sonic)	Longrun	Water pumping consumes good amount of power and energy. Leakage of fluids between the point of source and point of discharge results into loss of revenue both in terms of valuable resource, energy and precious manpower. Hence Measurement of liquid flow.	
20	Stroboscope	Meco	All rotating measurements need to operate at a fixed RPM.	
21	Digital Tachometer	Metravi		
22	Sound Level Meter	Metravi	Sound level meters are used to measure and manage noise from a variety of sources, including industrial plants, road and rail traffic, and construction work.	
23	Digital Anemometer	Metravi	An anemometer is an instrument that measures wind speed and wind pressure. Anemometers are important tools for building ventilation. Generally involves the use of supply and exhaust ventilation to control emissions, exposures, and chemical hazards in the workplace. Traditionally, nonindustrial ventilation systems commonly known as heating, ventilating, and air-conditioning (HVAC) systems are built to control temperature, humidity, and odors.	
24	Digital (Contact) Temperature & Humidity Meter.	Metravi		
26	Indoor Air Quality Monitor	Broad		
27	Differential Pressure	Testo		
28	Thermo-Hygrometer	Testo		
29	Thermal Anemometer	Testo		
30	Leak Detector (Ultrasonic)	Exair		
31	Infrared Thermometer	Metravi		
32	Combustion Analyzers (PC Interfaced)	Delta		Thermal (Fuel) Energy - for boilers & furnace.
In transit/Projected for coming financial year.				
A	Soil analysers (4 nos) - In transit		Water is the prime driver of life on the earth. Due to urbanization, water has been depleting both in terms of	

LIST OF INSTRUMENTS AVAILABLE (OWNERSHIP) AS ON DATE FOR ENERGY AUDIT.

All equipment's are calibrated by the original suppliers and updated based on assignments. Whenever necessary, NABL Calibration shall be obtained.

Listed in order of (cluster) application. We do not believe in hiring the instruments.

Sl. No.	INSTRUMENT	MAKE	APPLICATION
			availability and quality. Soil analyser is used to measure the moisture content in soil. Apart from moisture it also measures the subsoil temperature, Electrical conductivity, presence of nutrients such as N, P & K. The measurement of these parameters before rainwater management and post rainwater management helps the effectiveness of the measures initiated.
B	Ultrasonic instruments		Non-Destructive Tests for condition monitoring.
	Steam trap inspection		Estimated cost 15.00 Lacs
	Bearing		
	Rotational mechanical equipments.		
	Compressed air systems.		
C	Battery regeneration System		
	Total value of assets by way of Instruments on ownership basis		Over 75.00 Lacs till date.

Sunshubh's Instruments deployed for Energy Audit