

SURETECH INSTRUMENTS CATALOG 2011



News from SURE Engineering, the High Voltage & Current Instrumentation people

We design and manufacture state of the art voltage and current sensing systems

*We welcome your feedback and suggestions for existing and new solutions, so please
give us a call to receive more information and quotations*



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3	Electrical SAFETY test instruments
5	High current sensors AC measurement, sine and transient voltages
6	High Voltage sensors for AC measurement, sine and transient voltages
7	Integrated voltage and current sensing and processing systems
8	DC/AC sensors for batteries, traction and many other applications
10	Signal Processors, filters, controllers, transducers, protection relays
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MANY PRICES IN THIS CATALOG ARE ESTIMATES

- Please request a quotation for your configuration required
- Prices are given in ZA Rands, and at the time of printing R7.0 per US\$
- Prices shown in this catalog EXCLUDE VAT, and are FOB Cape Town
- VAT is NOT payable outside South Africa
- Volume and resale discounts are available, please enquire
- We normally have safety testers ex-stock, but please check with us for delivery times
- We keep all modules ex-stock, so we can normally manufacture to meet USER configuration within 1 to 3 weeks

- Our SURETECH module range has been developed and extended.
- We can configure instrumentation systems to satisfy a wide range of customer requirements.
- This SURETECH Catalog gives examples of some of the instruments that we regularly manufacture for clients.

- We get a lot of interest in our range of products.
- Should you want a particular configuration of instrument, please feel free to discuss your needs with us.
- Production priority is always given to purchase orders, rather than development samples and capability demonstrations



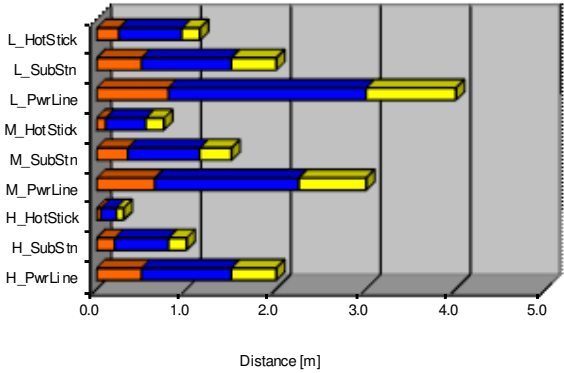

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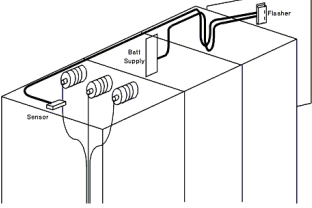
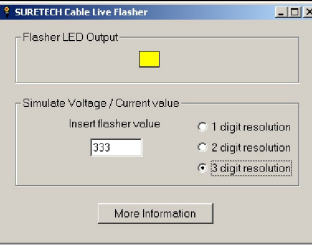
**Concentrate on working
SAFELY at all times !!**



Electrical SAFETY test instruments




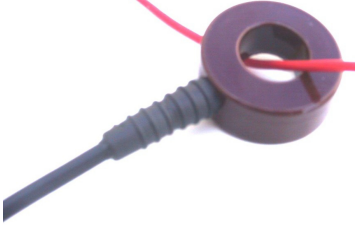

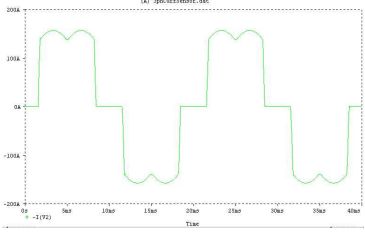
<p>HV/PA the High Voltage Personal Alert</p> <p>Price:</p>	<ul style="list-style-type: none"> • ALL people (skilled AND unskilled) can now SEE whether electrical equipment is live or dead • Use on any voltage from 110Vac to 760kVac (see graph operating distance 11kV) • The Personal Alert is worn on your wrist like a watch, fastened with Velcro straps, OR mounted on telescopic link stick with standard crown adapter • No user controls, automatically switches ON or OFF, entering or leaving HV electric field • Buzzers beep and ultra bright LED flashes at a rate that increases from 0.7Hz when approaching live equipment, to 20Hz near live conductor • Filters for corona, partial discharge and electrical noise make the HV/PA stable under wide range of electrical noise • Types available: <ul style="list-style-type: none"> • H – High skill, higher voltages (white) • M – medium skill, med voltages (grey) • L – Low skill, lower voltages (black) 		
<p>HV/PT2 High Voltage Personal Tester</p> <p>Price:</p>		<p style="text-align: center;">SURETECH HV/PA Operating distance at 11kV PwrLine: HV/PA on wrist, SubStn: HV/PA on wrist, HV/PA on Hot stick</p> 	
<p>Contact Adapter kit</p> <p>Price:</p>	<ul style="list-style-type: none"> • The HV/PT2 remains South Africa's favourite electrical tester... and orders continue to grow... and we continue to improve QUALITY and reliability; and our market responds with "WE WANT IT!" • The HV/PT2 continues to do well in Mexico and South America, with further good orders being shipped there. • HV/PT-90 is specified by Mexican power utility for their UHV 760kV lines. A cluster of high brightness LEDs is used • We have configured the instrument to meet their local voltage range requirements. Well done to Suparule SA for their marketing efforts! 		




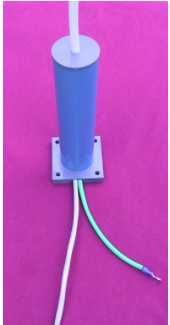

<p>Reference Generator</p> <p>Price:</p>	<ul style="list-style-type: none"> Belt carried, battery powered proving unit Suitable for testing HV/PT2, HV/PA Normal procedure for testing an HV tester: prove operational on a known live source, the test is then made, and then followed by a closing test on the known-live source again This Reference Generator is the known live source 	
<p>HV PERSONAL SAFETY TEST KIT</p> <p>Price:</p>	<ul style="list-style-type: none"> Typical kit made up of HV/PT2, Contact adapter with 22kV probe, 50kV handle, Reference Generator, 3x HV/PA (H, M and L sensitivity) User can specify which of the testers he wants to make up the kit Woven, rugged zip up bag is provided with foam padded hardboard top and base to protect the safety instruments Each instrument also delivered with its own woven pouch for further protection Kit bag is 1080mm x 280mm x 80mm, with straps 	
<p>Phasing Sticks</p> <p>Price:</p>	<ul style="list-style-type: none"> IEC61481 Ultra safe operation via IR (Infra Red) controller for hands free control of instrument Voltages: 3.3kV, 6.6kV, 11kV, 22kV, 33kV standard HV also available: 66kV, 132kV Probes have crown adapter for handle, or telescopic link stick operation, with MV insulated, light, flexible cables to earthed sensor, at or near ground level MV Insulated cable lengths available 2.5m, or 5m or 10m Two handles, each with double hand grips, to manipulate probes Measures 4x parameters simultaneously, phase voltage Right, Phase voltage Left, true line voltage L-R, true phase L-R Voltage resolution: 100 Volts, Alphanumeric LCD display with backlight, LED & audible buzzer 	
<p>Cable Live Flasher Voltage sensor in MV chambers</p> <p>Price:</p>	<ul style="list-style-type: none"> Indicates voltage on MV / HV cable end boxes & chambers Single LED provides 1 or 2 or 3 digit flasher output for accurate voltage monitoring: mounted on LV chamber door / front panel; uses ONE M10 bolt with locknut Feed from sensor near HV, via 5m screened cable with RJ11 plug clicks sensor to Flasher together RS232 interface to PC for voltage logging and QOS monitoring <ul style="list-style-type: none"> Voltage scaled to any FSD value 1 or 2 or 3 digit flasher LED output selection Voltage threshold settable for alarms Real time clock synchronised to HV mains PSU: substation battery 10V to 40V; 1W; screw terminals FREE! Windows program to teach personnel about CLF Ultra SAFE, ultra quick installation, ultra linear, ultra low cost 	 



High current AC sensors

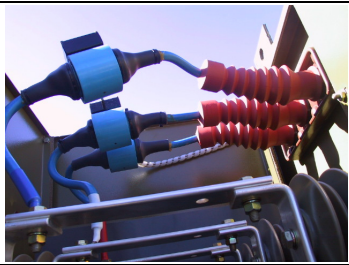

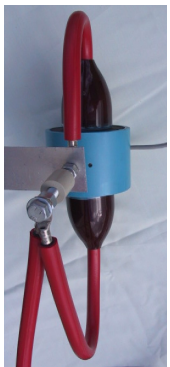
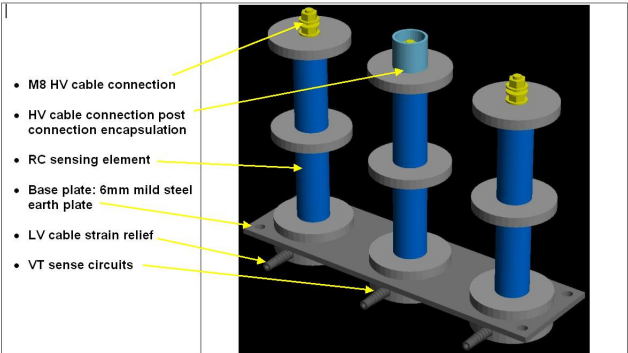
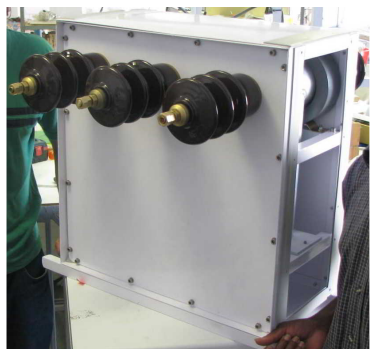
<p>RCS split-flex, for High current AC</p> <p>Price:</p>	<ul style="list-style-type: none"> Split-flex Rogowski Current Sensor for 30amps to 100kA, with simple nylon clips Various lengths available for different shapes of bus-bars and cables Ultra linear measurement circuits for measuring wide dynamic ranges For use on 50/60Hz or wide bandwidth systems Electro static screening for high dv/dt immunity Signal conditioners available for a range of different applications Includes signal processor & PSU, outputs 4-20mA, inst 5V, etc. Interface to SLP to perform various functions such as load logging, protection, indication, control etc. including RS232 outputs 		
<p>RCS split-core solid</p> <p>Price:</p>	<ul style="list-style-type: none"> Very compact sensing coils can be designed by us, to fit into your very tight space constraints Includes signal processor & PSU, outputs 4-20mA, inst 5V, etc. Very wide range of currents Accurate with stable operating environment Ultra Linear, Ultra SAFE, Ultra simple 		
<p>RCS solid-core, wide bandwidth</p> <p>Price</p>	<ul style="list-style-type: none"> Rogowski coil for pulse applications such as SCR or Thyristor trigger monitors Price is Rogowski coil only (without signal processing etc.) Screened to eliminate dv/dt noise injection Strain relief with 2m screened cable 		
<p>RCS solid core</p> <p>Price</p>	<ul style="list-style-type: none"> Fixed type Rogowski Current Sensors These RCS have solid core either fully closed or U-shaped for less accurate but more convenient measurements Sensors have screened cable connected to the signal processing module Pictured to right show units that were calibrated for 8000Amps FSD, furnace current sensors Extremely linear response over the full range 		
<p>AC/DC Rogowski sensors</p>	<ul style="list-style-type: none"> Shown to right is current wave form into a 3 phase rectifier Phase 2 and 3 currents are the same, phase shifted By measuring this AC current, and processing this signal in our SLP (Smart Load Processor) we measure DC current with AC sensors Rogowski sensors have wide bandwidth to handle these waveforms 		

**HV AC sensors for measurement of sine and transient parameters**





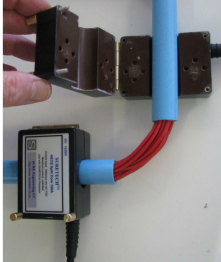
<p>HV Partial Discharge Sensors</p> <p>Price</p>	<p>Partial discharge / corona discharge sensors for voltage and / or current</p> <ul style="list-style-type: none"> • Voltage PD uses proximity voltage sensors mounted near point of observation, current PD uses Rogowski sensor • PD / CD signature is extracted over bandwidth 5kHz to 500kHz • Baseline PD / CD is used as reference threshold • Harmonic analysis, analog or DSP processing 	
<p>Outdoor Live Line Voltage sensors</p> <p>Price</p>	<p>Fixed VTs or mobile Vehicle sensors</p> <ul style="list-style-type: none"> • ODLL Sensors are orientated to outdoor voltage measurement applications • If capacitance between HV source and sensor is fixed then accurate voltage is measured • Vehicle sensors for cranes, trucks etc. • One sensor can measure either HV or MV on 50/60Hz applications including QOS parameters • Can be configured for transient applications such as lightning, partial discharge, surge and transient measurements, and impulse testing 	
<p>AC and DC Voltage Monitor</p> <p>Price</p>	<ul style="list-style-type: none"> • The SURETECH AC/DC Voltage Monitor for MV • Measures AC and DC voltage, AC voltage, harmonics, phase, phase rotation • Sensors facilitate many applications including metering, protection, indication, alarms, monitoring, logging, power factor equipment monitoring etc. • Output: +/-5V peak • Aux PSU: +/-15Vdc 	
<p>HV/PPS the High Voltage Pulse Peak Sensor</p> <p>Price</p>	<p>PULSE PEAK and SINE VOLTAGE MEASUREMENTS MADE WITHOUT PHYSICAL CONTACT</p> <ul style="list-style-type: none"> • Accurate HV pulse peak impulse measurements used for: • Cable and cord insulation pulse testing • Laboratory HV and transient voltage measurements • Lightning impulse measurements to hundreds of KV • Safety interlocks in production equipment 	




Voltage & current sensors with load processors

<p>VI-x Sensor</p> <p>Price</p>	<ul style="list-style-type: none"> • Integrated sensors for measuring voltage, current, phase angle and all other electrical parameters • Ultra SAFE, Ultra compact, Ultra cost-effective • Technology can be used on MV voltages from 1kVac to 33kVac (11kV & lower available now) • Existing cable can be used, or add-in cable to mount sensors • Cable lengths can be supplied to users requirements with integrated sensors • Can be configured for metering and protection from ONE sensor. (e.g. typical fault current FSD can be around 50 times higher than rated FSD) • BIL 75kV impulse on 11kV systems • Cylindrical sensor resin potted components for stability • Maximum electric field strength is less than 1kV per mm (No partial discharge) • Integral cable connections between sensors and LV panel mounted SLP (Smart Load Processor) • PSU sources (90-260Vac / dc or battery) • Wide selection of input and output options including relays, opto-isolated, analogue and RS232, opto isolated, galvanic isolation • Output record rate is once per second: data output is: year, day number, time, temperature, sampling period, V, I, Ph, Quadrant, Acc VA, Watts, and VARs • 1Mbyte data flash memory sampling periods can be set: 1, 2, 5, 10, 15, 20, 30 and 60 minutes 	  
<p>3-phase VT-110 output</p> <p>Price</p>	<ul style="list-style-type: none"> • Indoor VT (Voltage Transformer) for 6.6kV, 11kV, 22kV, 33kV etc. • Accuracy / class: 0.2, 0.5, 1, 2 • Mod-box in LV chamber contains Aux PSU, signal processing etc • Outputs: 63.5Vac 3phase signals to drive standard meters • Aux PSU: 200-260Vac, or 100-130Vac 	<p>SURETECH VT11 3Phase Voltage Transformer</p>  <ul style="list-style-type: none"> • M8 HV cable connection • HV cable connection post connection encapsulation • RC sensing element • Base plate: 6mm mild steel earth plate • LV cable strain relief • VT sense circuits
<p>3-phase CT/VT for metering</p> <p>Price</p>	<ul style="list-style-type: none"> • Outdoor CT/VT (Current & Voltage Transformer) for 6.6kV, 11kV metering, protection etc • Porcelain bushings for outdoor • V Output: 63.5Vac 3phase • I Output: 1 Amp 3phase rms FSD • Burden: 1-10VA per output • Accuracy / class: 0.2, 0.5, 1, 2 • Aux PSU: 200-260Vac, or 100-130Vac • Pole mountable 	


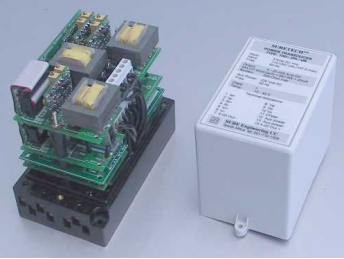


**DC & AC applications**

<p>75kV DC/AC Voltage Probe</p> <p>Price</p>	<ul style="list-style-type: none"> • DC/AC Voltmeter for accurate measurements • HV/MV measurements, separators, precipitators, HV labs, X-ray, medical instruments etc • Probes for 75kV and 22kV to earth • Rugged case: powder coated aluminium with foam sealed lockable lid, OR woven bag with zip, having padded hardboard top and base • Backlit LCD display with microprocessor • Harmonic sampling for wave-shape monitoring • RS232 output for computer interface & logging • Earth cable provided (5m) • Assortment of probe tips 	 
<p>75kV DC Voltage sensor</p> <p>Price</p>	<ul style="list-style-type: none"> • 75kV DC/AC sensor for fixed applications such as: • HV/MV measurements, separators, precipitators, HV labs, X-ray, medical instruments etc • Impulse protection • Input impedance: 220Mohms • Bandwidth is from DC to 1MHz • Instantaneous and 4-20ma outputs are available • 75kV Opto Isolation available 	
<p>HECS700U AC or DC Current probe</p> <p>Price</p>	<ul style="list-style-type: none"> • HECS AC current probe for spot check measurements on power lines up to 700amps, with telescopic links stick • Peak hold feature for delayed reading from power lines • HECS DC current probe for spot check measurements on batteries, electrolytic cells etc up to 700amps • Backlit LCD display with microprocessor • Harmonic sampling for wave-shape monitoring option • RS232 output for computer interface & logging 	
<p>HECS DC/AC Current Split-core</p> <p>Price</p>	<ul style="list-style-type: none"> • HECS (Hall Effect Current Sensor) for currents from 25A to 500A • Quick sampling or permanent installations using thumb-screws • Up to 24mm diameter cables • Outputs: 4-20mA, instantaneous 5V, or feed into SURETECH SLP • Powered from +/-15Vdc • Connector and 2m cable provided 	



<p>DC VI Sensing System for traction</p> <p>Price</p>	<ul style="list-style-type: none">• SURETECH HECS and DC Voltage Sensors forms the backbone of railway traction control system• Picture 6x 1kA current sensors, 7x 3kV voltage sensors, 1x 6kA current sensors• 6x loco motors individually monitored for V, I, and power• 15kV galvanic isolated link, and distributed to 4-20mA outputs	
<p>DC VI Sensing Controller System for GREEN Energy</p> <p>Price</p>	<ul style="list-style-type: none">• SURETECH BEC Battery Energy Controller• 4x 15amp current sensors + 1x voltage sensor• Accumulates VA to keep track of Energy used to charge / discharge 12 / 24V batteries, fuel cells, solar panels, wind generators etc.• Mosfet switches control 15Amp loads to protect battery, fuel cells, solar panels, wind generators to protect 2 channel loads• Multiple BECs can be configured in ring main around boat, house etc to provide local and remote control of loads• RS485 control loop can control up to 32 BECs per ring	

**Signal Processors, controllers, transducers, protection, relays**

<p>Single Transducer for V, I</p> <p>Price</p>	<ul style="list-style-type: none"> • Standard transducer for Current or Voltage • Current input: 5 amp or 1 amp (user specified) • Fault current tolerance to 120amps for 3 seconds • Voltage input: 230Vac / 110Vac (user specified)Output: 4-20mA dc • Aux PSU: 90-260Vac / battery 18-36Vdc (user specified) 	
<p>3ph SLP for V, I, kW, kVA, kVAR, PF, etc</p> <p>Price</p>	<ul style="list-style-type: none"> • The Smart Load Processor (SLP) for three phase, measures most electrical parameters in one instrument: Voltage, Current, kW, kVA, kVARs, Power Factor, Phase angle, Frequency, and kWh, and accumulated parameters • 4-20mA output • Parameters can be downloaded to your computer directly into the RS232 port • Data is fed directly into your favorite spreadsheet, or we could process it for you, email results to you, or we could upload it to a website of your choice. 	
<p>SLP for V, I Multi-channel</p> <p>Price</p>	<ul style="list-style-type: none"> • Smart Load Processor (SLP) for multi-channel measurements • Voltage, Current, kW, kVA, kVARs, Power Factor, Phase angle, Frequency, and kWh, and accumulated parameters • 4-20mA output • Parameters can be downloaded to your computer directly into the RS232 port • Data is fed directly into your favorite spreadsheet, or we could process it for you, email results to you, or we could upload it to a website of your choice. 	
<p>ELM Multi-channel</p> <p>Price</p>	<ul style="list-style-type: none"> • Earth Loss Monitor for cable theft • Up to 16 separate resistance channels monitored • Earth loop resistance displayed on LCD, 1ohm to 1000ohm • Sensing inputs are protected to 270Volts • Relay contact output for alarm reporting • Alarms raised when loop resistance exceeds threshold • Thresholds settable at 2, 5, 10, 20, 50, 100, 200, 500 ohms • Auxiliary Power Supply options 90-260V ac/dc, and battery 	



<p>HiPot 30D tester</p> <p>Price:</p>	<ul style="list-style-type: none"> • HiPot 30 tester: economical solution to DC and low frequency AC testing of cables, terminations, motors, generators and most MV electrical apparatus • Low frequency testing uses 0.1Hz sine wave generation, true RMS and instantaneous voltage measurements are available • Safe discharging of both the test object and the high voltage transformer occur whenever the high voltage is turned off • Cables supplied: Input power, return cable, HV output unscreened (insulation rating 40kV) • User interface: PC controller GUI interface, and computer interface RS232 results directly importable into Excel spreadsheet • Output: 0 – 30kVdc @ 0.1Hz, 5 mA max • HV out timer settable in steps of 1second Input Voltage 230V AC 	
<p>Other controllers</p>	<p>We can provide for a wide range of applications. Such as Synchro-Scopes for generator synchronisation to bus-bars, phase rotation controllers, protection relays, interlocks, tap-changers metering, alarms, logging etc.</p>	<p>ASK US WHAT INSTRUMENTATION YOU WOULD LIKE TO IMPLEMENT</p>

SERVICES we provide

<p>Electrical SAFETY Training Course</p> <p>Price:</p>	<p>This two-day course is presented at your premises for as many people as you would like to train, and covers: General Operating Principles, Dangers of Electricity, OHS Act, Earthing, Equipment & Instrumentation handling. SAFETY is everyone's concern, and should undergo continuous improvement. Our model of SAFETY places it on four pillars, Procedures, Training, Equipment and the Operator. If any one of the pillars becomes defective, or degrades, or cracks due to a breakdown in communications, then operator safety is jeopardised. SAFETY can never be absolutely guaranteed, but rather everyone concerned should take the approach of continuously improving SAFETY</p>	
<p>ESD Floor Testing</p> <p>Price:</p>	<ul style="list-style-type: none"> • Manufacturers of special flooring products (such as Polyflor) sell ESD (Electro Static Discharge) conductive, or ESD dissipative floor coverings • Typical installations include, electronics manufacturers, petro-chemical and explosives plants • We perform testing on these floors to ensure that they meet manufacturers installation requirements 	
<p>Fault analysis services</p> <p>Price:</p>	<ul style="list-style-type: none"> • As an integral part of our design process we often simulate the problem at hand • We can offer you the use of these simulation services to do fault analysis for you • If you have a fault situation on your power system that you do not quite understand and would like to get a better handle on what is the most likely cause of the problem, then simulation is a very useful tool 	



Phone us for the latest updates, news, CDs, latest prices etc.

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