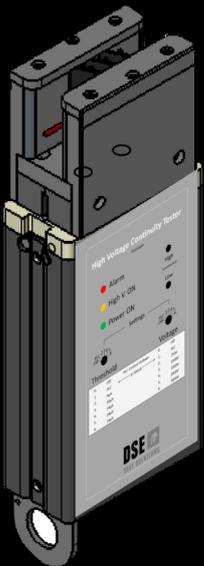


Detection of *faults* in the insulation



High Voltage Tester



IN LINE TESTING

- Hairpins
- I-Pins
- Winding wire



Application of HVC SA

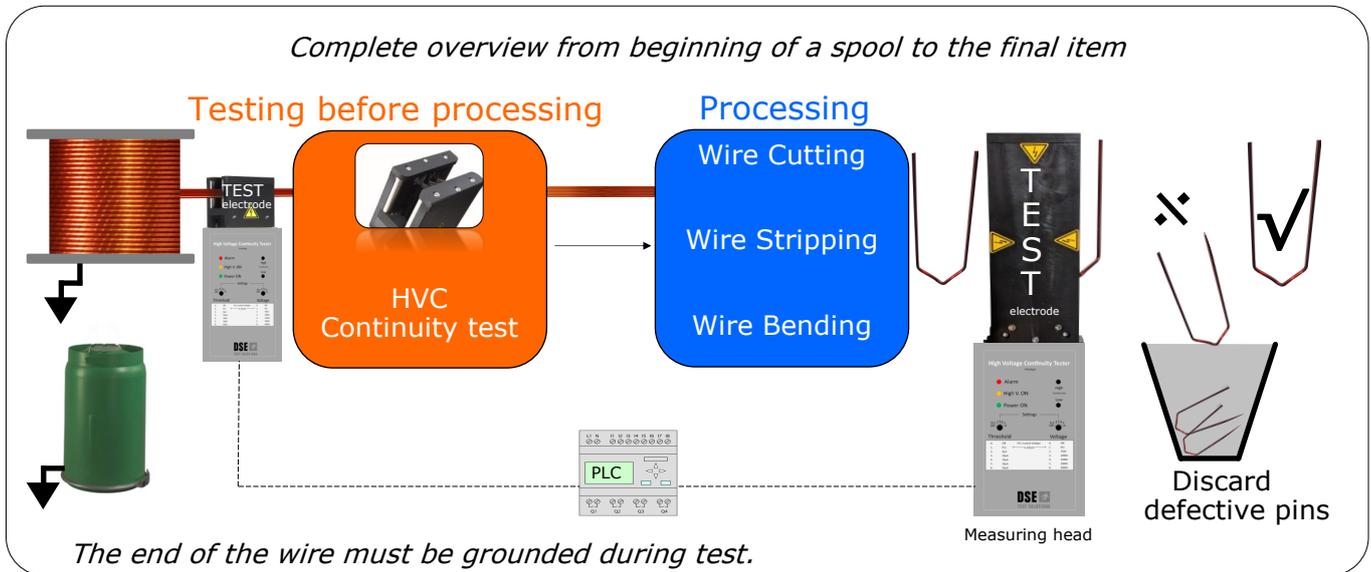
Fault detection

Effective testing

Testing each single Hairpin/I-pin and each meter of the coated wire before processing is the most effective way for securing the raw material has no faults that later on will discard final product. Production of E-Motors– Transformers– Rotors etc. is costly so knowing the raw material has been tested is essential.

Fast alarm

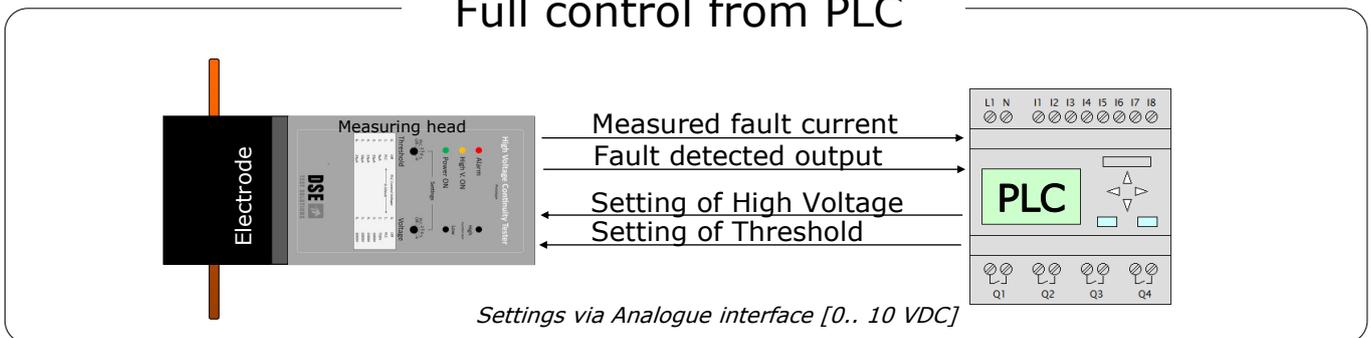
In cases a pin hole or crack is being detected the alarm output turns ON and makes it possible to mark the defect on the wire or discard a defect Hairpins / I-Pins



Simple in installation and operation.

Only 24 VDC is needed. The setting of the High Voltage and Threshold is done on the front by means of five individual pre-sets (other pre-sets can be made on request) or analogue interface [0.. 10 VDC] for make settings and fault current measurements. See example below.

Full control from PLC



Features:

- Full 360 degree surface coverage of the wire coating and the bended Hairpin or I-pin
- Build in controller with 5 individual pre-set for both the High Voltage tension and Threshold
- Interface for PLC, direct setting of HV and Fault current/Threshold from [0.. 10 VDC]
- Output for measured fault current
- Wide range of electrodes available from wire size 8 μm to a completed bended Hairpin/I-Pin
- Optical isolated alarm output when fault is detected.
- Output for switching on a light tower showing Power ON & High Voltage ON
- No damage from sparks (low power design) max 100 μA
- Wide output Test Voltage range 350 VDC to 6000 VDC
- Low tension means no damage of the enamel because of very soft conductive brushes

Exchangeable Electrode option

Exchanging of electrodes

4 screws for exchange on the side

The Measuring Head operates base unit.
A wide range of electrodes can be mounted and exchanged to offer maximum flexibility.



Measuring head

Part No.: 46272

See the complete range of electrodes below.

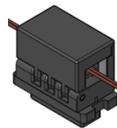
Standard wire



0.005 mm...2.5 mm AWG 10
Up to...2.5 mm
Up to...0.1"

Part No.: 71876

Mid range



AWG 184
1 mm 5 mm
Up to 5 mm / 0.2"
Up to 5 mm / 0.2"

Part No.: 71880

Heavy wire

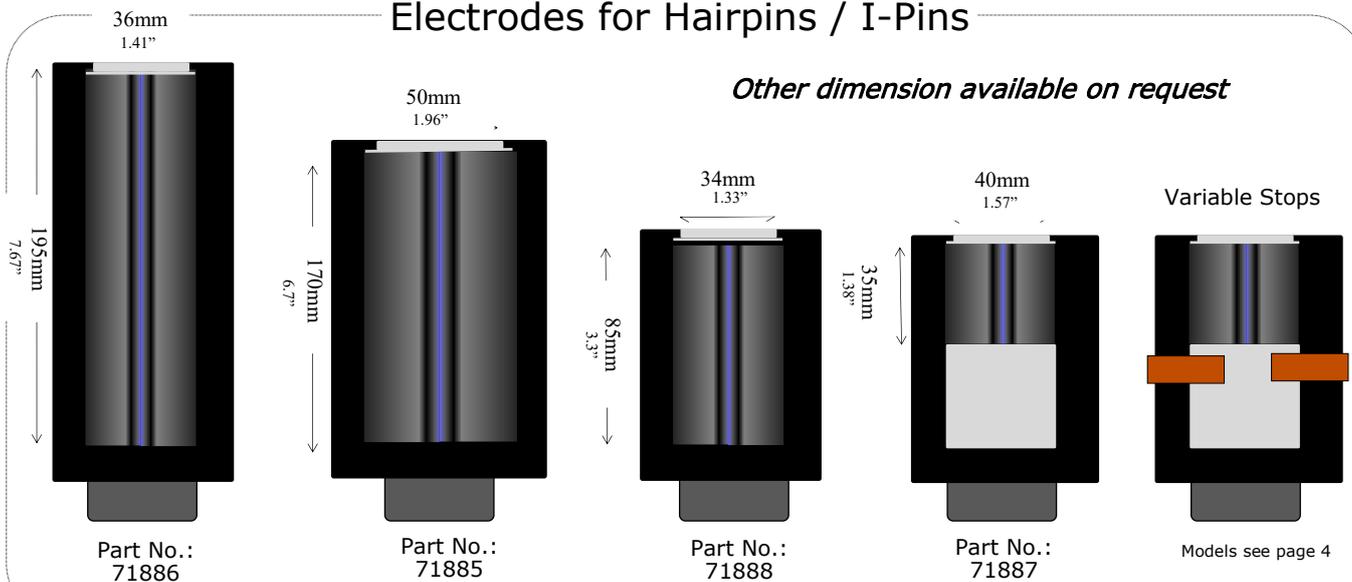


AWG 240
0.5 mm...8 mm
Up to 8 mm
Up to 0.33"
Up to 26 mm
Up to 1.02"

Part No.: 71901

Electrodes for Hairpins / I-Pins

Other dimension available on request



Mounting Bracket

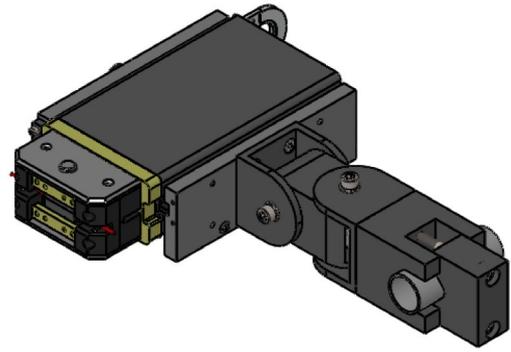


With DIN Rail mounting option



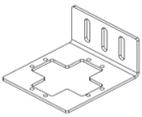
Part No.: 71929

DSE 2100 Multi position holder



Part No.: 46213

Mounting Bracket for Electrodes



Part No.: 71930

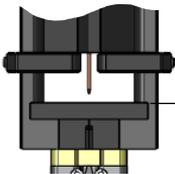


With brush pin for sample test



Part No. 31844 1 meter
31845 2 meter

Variable stop for electrode



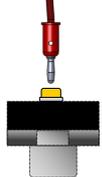
For 36mm electrode
Part No.: 71917

For 50mm electrode
Part No.: 71918

Electrode for Cable interface

Electrode

Cable adapting part.
Part No. 31844 1 meter
31845 2 meter



Adaptor Top
Part No.: 71920

Load Probe for function test

High Voltage Load probe with a build in a precision resistor of 20MΩ
This Load probe can simulate a pin hole and make a current flow of 50 μA @ 1000



Part No.: 46208

Power Supply Unit 24 Volt DC

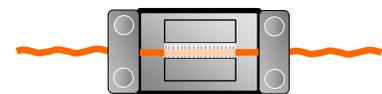


Part No.: 75333



PSU With Buzzer
Part No.: 46273

Felt guide and wire stabilizer

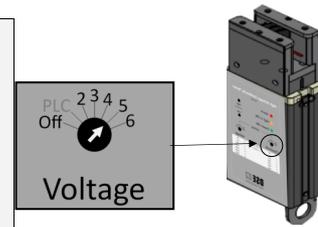


Part No.: One set (2pcs) :71882

Specification Electrical:

Standard Pre-set on the front

	0.	Off	PLC Control Voltage	0.	Off
	1.	PLC	← 0-10Volt →	1.	PLC
	2.	9µA		2.	750V
	3.	10µA	Hairpin	3.	1000V
	4.	14µA	Hairpin	4.	1500V
	5.	18µA		5.	2000V
	6.	24µA	Hairpin	6.	3000V



Settings according to IEC 60851-5 for inline purpose *

Setting of the Test Voltage in position PLC

Calculation factor Input = [High Volt Output / 600]

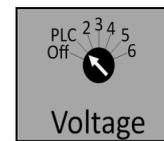
Output Voltage range (example):

Control Voltage set to 10 VDC = 6000 VDC Test Voltage

Control Voltage set to 0.583 VDC = 350 VDC Test Voltage

Accuracy for Control Voltages: <5 % = ±10mV

@ Test Voltages output of 1000 Volt



Setting of the Threshold in position PLC.

Current above the Threshold will activate the fault output.

Calculation factor on Input = [Threshold µA / 10]

Range (example): *10 VDC = Threshold set to 100 µA*

0.5 VDC = Threshold set to 5 µA

Alarm trigger accuracy: Settings ±2µA (PLC or Pre-set)



Output:

- Test Voltage on brushes: 350 VDC to 6000 VDC ±5% IEC Norm. 80851-5
- Maximum current: 100 µA DC
- Measured fault current available as signal 0...10 VDC, Accuracy equal ±2µA
- Fault output is active as long as the current is above the selected threshold. Minimum time is 25 mS.
- Max. line speed for Hairpins/I-pins 500mm/second @Test Voltage 1500V and Threshold 24 µA
- Max. line speed for running winding application 1000m/minutes
- Output for Power ON [30 V/100 mA] can be connect to e.g. a light tower
- Output for High Voltage ON [30 V/100 mA] can be connect to e.g. a light tower

Power

- Power supply: 24 VDC ± 10%
- Power consumption current max: 750mA
- Interlock function

Others

- Ambient temperature : 15°C - 50°C
- Humidity: 0 - 80% no condensation.
- Weight: 1.5 kg without electrode

Implementation Standard: NEMA 1000-2003, IEC 60851-5

* Inline high-voltage continuity (wires in accordance with grade of FIW 3 to FIW 10 with nominal conductor diameter over 0,035 mm up to and including 1,600 mm)

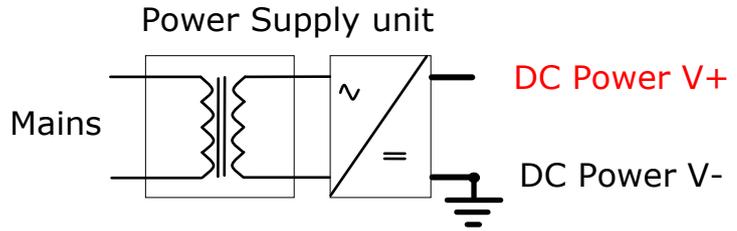


Grounding

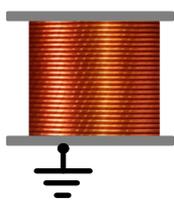
Application

Note:

In order to be able to measure a fault current caused by a crack or a pinhole in the coating of a wire, the conductor must referring to the same ground potential as shown in the examples below.

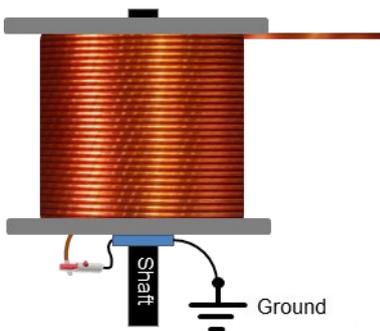


NOTE:
It's recommended to use a separate Power Supply for the HVC SA.
The minus of the 24Volt input and the chassis of the HVC SA is connected internal.

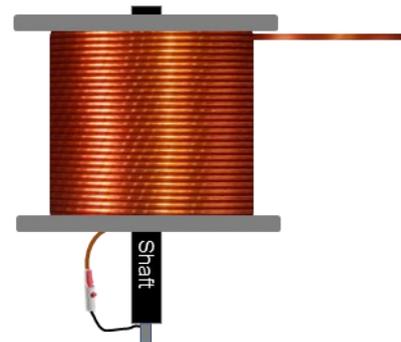


Grounding of rotating spools / bobbins

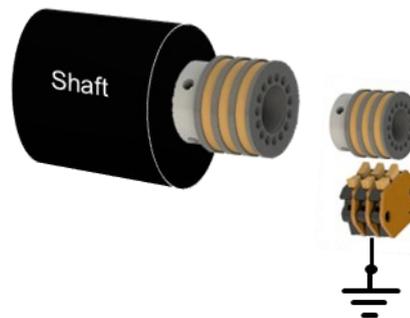
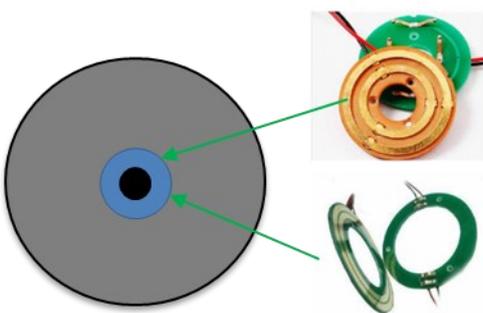
Pancake type slip ring



Through bore slip ring



Examples

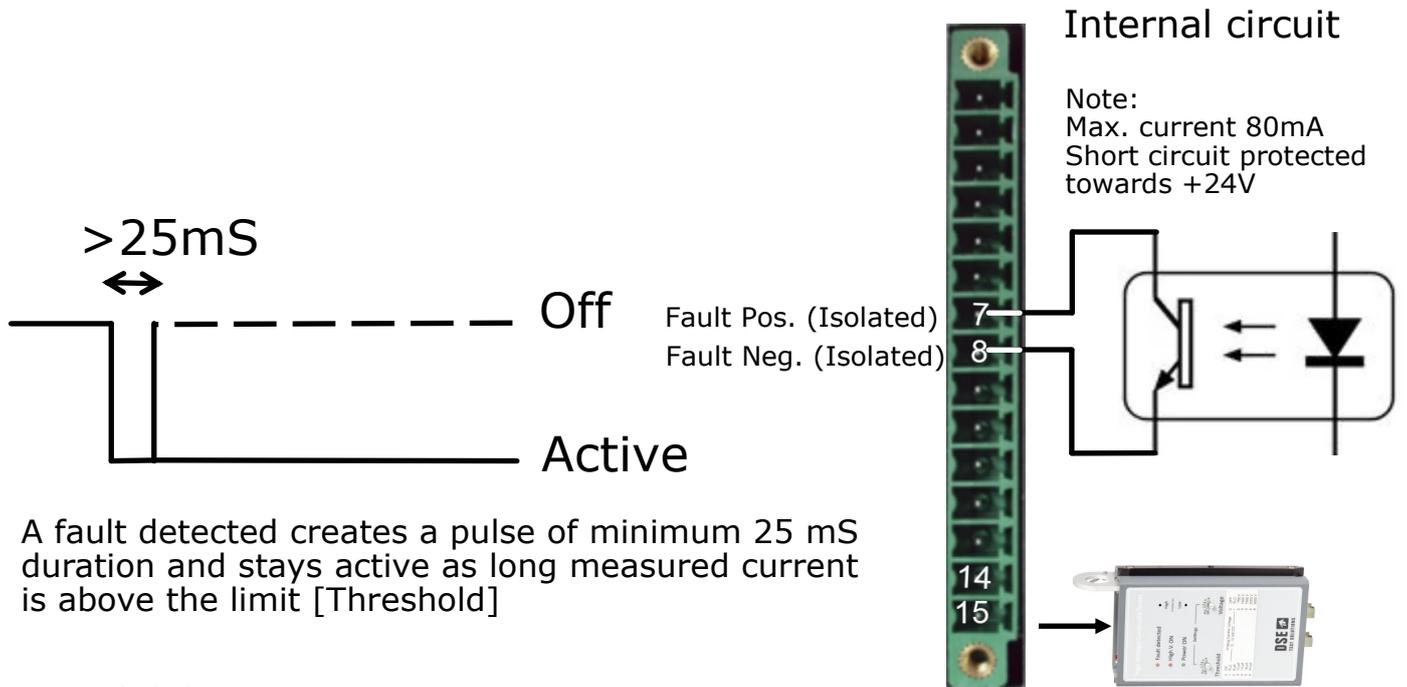


Fault detected output

Application

As long as the measured current is exceeding the limit set by the Threshold on the front or by means of the PLC, the Fault detected output stays active, and minimum 25mS.
The output is an open collector galvanic isolated as shown below.

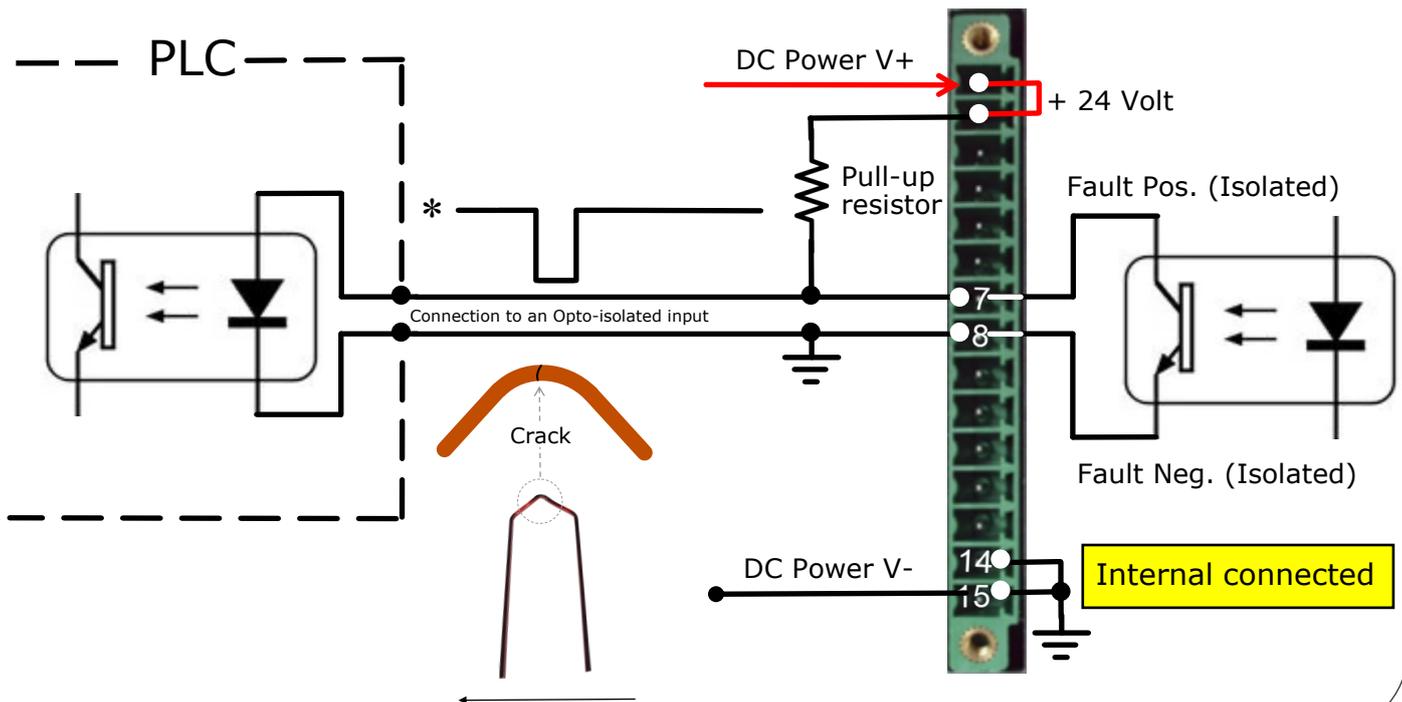
Fault detected output for drive and input on a PLC or a Relay



A fault detected creates a pulse of minimum 25 mS duration and stays active as long measured current is above the limit [Threshold]

Example below:

An crack in the enamel is detected and a pulse is send to the PLC input. The pulse can be used for alarm purpose and/or stopping the line





Headquarter in Denmark



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