

The principle

The cloth travels through a sensor head, before reaching the shearing machine or the calander.

If a seam passes through the sensor head, the sensor issues a signal to the control box.

This control box activates the pneumatic or hydraulic system in the shearing machine or calander.

The times or distances between the passage of the seam and the switching of the sensor head are set on the front of the insertion housing. (Not on the type NW-i)

Nahtwächter® seam detector type NW.....

Depending on the application, you can select of two types:

Type: Nahtwächter® NW- i

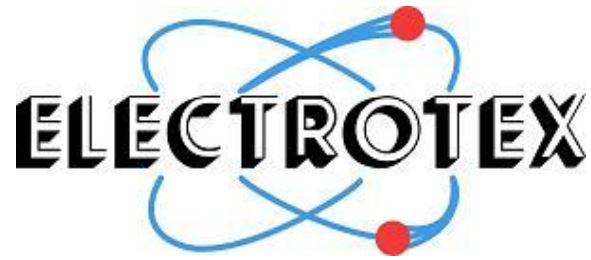
Type: Nahtwächter® NW-...D...

The types: NW- i

Operate without long measurement and give only one signal if a seam in the fabrics is registered. This equipment is to recommend if a SPS (PLC logic CONTROLLER) in the machine is present.

The types: NW-...D...

Operate according to the principle of distance measurement and should be deployed when running at different speeds.
(digital length measurement)



The sensor head or Detector Head type: ET-TAS-5/s

The sensor head is made of aluminium.

The electronics are built into the housing. The sensor head measures the difference in thickness (seams) in the cloth (capacitive measurement).

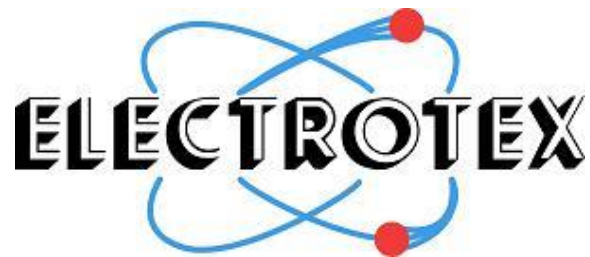
The sensor head should be mounted on a stable 30 mm diameter metal rod, such that by shifting the sensor head along the rod, it can be adjusted depending on the cloth width.

The cloth must always travel along one side, and at least 120 mm into the sensor head !!!

For cloths of different thicknesses, the relevant cloth thickness should be selected.

The standard size is 5 mm. !!!!

4.8 mm and 12 mm models are also available. !!!!



Detector Head type: ET-TAS-5/sq

The NW-i or NW-2D/sch seam detector has equipped with a 5mm split SQ detector head.

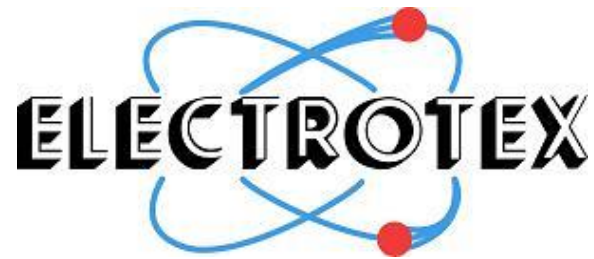
With a ET-Tas-5/SQ detector head, is it possible by means of the noise regulator at the back side (connector side) of the detector head, to raise or reduce the noise threshold.

This noise regulator is used by fabrics which have a (very) rough structure, or is provided with conductive printing inks on cabbage or metal basis.

If the regulator at the back of the detector head, is turned clockwise (right), the sensitivity of the detector head will be reach the maximum value, but by use of conductive printing inks or a rough fabrics structure this adjustment will lead to wrong results.

But if you turn the regulator carefully to counter clockwise (left), the detector head detects only seams.

The Detector Head has been tested at Electrotex with several types of fabrics (dry, RH 4%) provide with gold painting mark, Merrow seams and fabrics speeds varying of 4 up to 50 M/min.



The control cabinet

Depending on the design, the control cabinet houses one or two printed circuit boards, with connections for mains voltage, sensor head, insertion housing and induction transmitter.

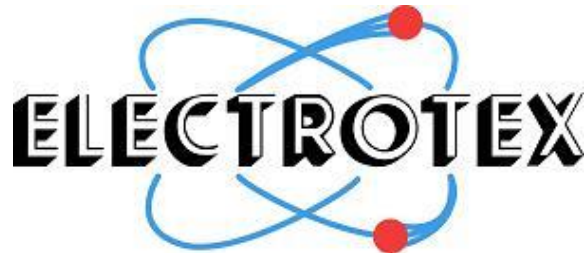
The FR4 printed circuit boards can be easily exchanged, facilitating easy and rapid customer service.

The circuits consist of a mains component and a relay output component.

The insertion housing with controller:

The controller is contained in an insertion housing in plastic (DIN 43700), in which two PCBs are contained for signal processing and relay control.

The following possible adjustments and optical signals appear on the front of the housing.



For both types:

Nahtwächter® NW-i and digital (...D...) seam detector

sensitivity controller

For adjusting the sensitivity of the sensor head.

Only for: Nahtwächter® NW-...D... (digital seam detector)

LED display mains ~ RED (left)

This lamp indicates whether mains power is available.

LED display seam ▲ Green (middle)

This lamp indicates whether a seam has passed or was processed.

LED display pulse ∩ Red (right)

This lamp indicates that an induction transmitter is issuing pulses. In normal machine operation, this lamp flashes at a frequency of 16 n (n= number of rotations of the pulse disc).



Adjusting switches

The setting of the adjusting switch depends on the design of the pulse disc and the distance between the sensor head and the point at which switching should take place.

The distance measurement starts at the moment the sensor head reports a seam.

The green LED lamp remains lit until the seam has passed the final switching point.

The most important components of the Nahtwächter® seam detector where control cabinet, sensor head and insertion housing must be mounted in such a way that there are no major fluctuations, and the operator can observe the device clearly.

Close to the device, there must be no powerful sources of heat.

Induction transmitter

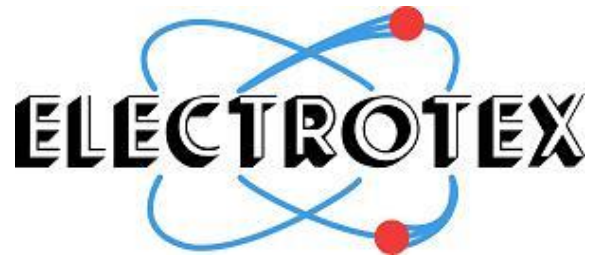
The induction transmitter generates pulses which are counted by the controller.

The transmitter is mounted together with the pulse disc.

The pulse disc is mounted on the shaft or roller which is driven slip-free by the cloth.

The disc should be mounted solidly, and must run without jerks.

The distance between the disc and the induction transmitter may not be more than 2 mm.



Commissioning the electronic Nahtwächter® seam detector.

Connect the device according to the enclosed plan.

The cloth should be fed through the detector head.

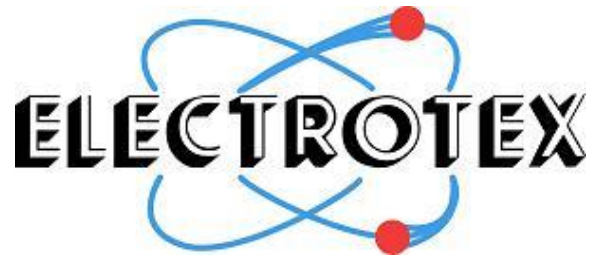
Ensure that there are no folds or crinkles.

Turn the adjusting switches (3 switches left =T1) to a low value and the adjusting switches (3 switches right =T2) to a higher value.

Examples for the settings of the decade switches on the control unit:

RAISE (T1)	LOWER (T2)	☀ Mains	☀ Seam	☀
Pulse				
123	456		correct	
000	112		correct	
001	100		correct	
100	001		incorrect	

If *T1* is set lower and *T2* higher, the correct moment is determined for separating and bringing together the rollers (raising – lowering).
The same procedure should be followed for *T3* and *T4* if present.



Troubleshooting

If problems occur during commissioning or later, check the following:

1. Mains voltage LED not illuminated:

- Check both main fuses ► Z6 and Z7 Ø 5x20mm 200mA delayed action !
- Check the low voltage fuse 15 Volt ► Z3 Ø 5x20mm 500mA delayed action !

2. Device fails to respond to seam:

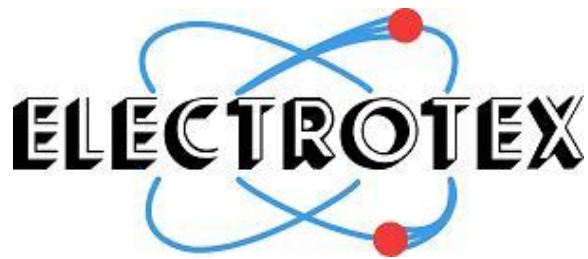
- Check the connection cable to the sensor head.
- Check the two plugs on the sensor head cable.
- Check that the cloth is running correctly through the sensor head.
- Check the high voltage fuses ► Z1 and cable fuse ► Z5 for correct operation
- Check the sensitivity adjustment for correct setting.
- Only on types NW...D...: is there a jumper between points 23 and 24 on the terminal strip. (control lock)

3. Device responds but rollers do not separate:

- Check the connection for the magnetic valves at points 1, 2 and 3 on the terminal strip.

Only for types NW...D...

- Check operation and installation of the induction transmitter.
Red LED lamp \cap on insertion housing must flash; it should not be permanently lit.



4. Device is activated without a seam passing through the sensor head

- Check whether the sensitivity regulator has been set too high.
- Check whether anti-interference capacitors (0.1 μ F 1000V) have been mounted on the magnetic valve coil.
- Check whether the cloth passes cleanly through the sensor head. See diagram!
- Check that cloth moisture level does **not exceed 10 % !!**
- **Carbon and metallic dyes are not permitted in the cloth.**
- Check that the earth connection is correct.
- Check for serious fluctuation in mains voltage. 230 V with 15% tolerance.

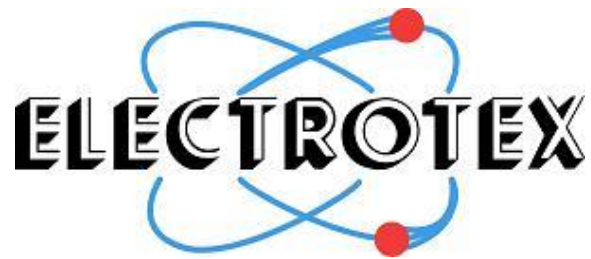
5. Fluctuation in roller raising and lowering moment

- (only for type NW...D...) Check whether the shaft with pulse disc is driven slip-free.

If you are unable to solve the problem, check the following points:

Fuses :

Z1= 200 mA	ø 5x20mm	delayed action
Z2= 1000 mA	ø 5x20mm	delayed action
Z3= 500 mA	ø 5x20mm	delayed action
Z4= 200 mA	ø 5x20mm	delayed action
Z5= 100 mA	ø 5x20mm	delayed action
Z6= 200mA	mains fuse	delayed action
Z7= 200mA	mains fuse	delayed action



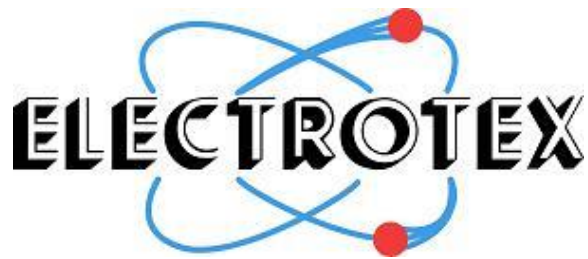
Voltages

Alternating current = AC
Direct current = DC

Connector C1 = horizontal (—) Phönix terminal strip in bottom of control cabinet.

Connector C2 = vertical (|) 7-pin Phönix terminal strip centre right in control cabinet

Voltage (V)	Current (mA)	Terminal	Connector
AC 230 V Mains	100 mA	10-11	C 1
AC 6.8 V	1000 mA	12-13	C 1
DC – 9 V	100 mA	1-7	C 2
DC + 360 V	10 mA	12-14	C 1
DC + 15 V	500 mA	4-7	C 2
DC + 15 V	500 mA	12-20	C 1



*Connections for Nahtwächter® (seam detector) NW-2DK-i
(Type: Küsters Krefeld Germany)*

Connector C1

1	2	3	4	5	6	10	11	12	13	14	15	16	20	21	22	23	24
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- 1-2-3 = Relay contact: seam message. (1 = NO; 2 = C; 3 = NC)
- 4-5-6 = Relay contact: "cloth in motion" (4 = NO; 5 = C; 6 = NC)
- 10-11-12 = Mains voltage connections (10=L1 11=N 12= PE earth)
- 13-14-15-16 = Sensor head connections (13=blue 14=red 15=white 16=yellow)
- 20-21-22 = Inductive controller connections (20=brown 21=blue 22=black)

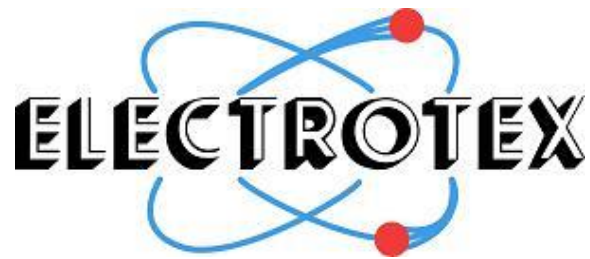
*Connections for Nahtwächter® (Seam Detector) NW-2D/sch
(Type: Ramisch Kleinewefers Krefeld Germany)*

Connector C1

1	2	3	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

- 1-2-3 = Relay contact: seam message. (1 = NO; 2 = C; 3 = NC)
- 10-11-12 = Mains voltage connections (10= L1 11=N 12= PE Protective earth.)
- 13-14-15-16 = Detector head connections (13=blue 14=red 15=white 16=yellow)
- 20-21-22 = Inductive controller connections (20=brown 21=blue 22=black)
- 23-24 = Control lock (short= Seam Scanner operates normally)

*Connections for Nahtwächter® (Seam Detector/Scanner) NW-i
(Type: Stork Boxmeer and Buser)*



Connector C1

1	2	3	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
---	---	---	----	----	----	----	----	----	----	----	----	----	----	----	----	----	----

1-2-3 = Relay contact: seam message. (1 = NO; 2 = C; 3 = NC)

10-11-12 = Mains voltage connections.

13-14-15-16 = Detector head connections (13=blue 14=red 15=white 16=yellow)

22-23-24 = Sensitivity regulator (22=black 23=blue 24=brown)

NO = Normally open (Arbeitskontakt)

C = Common (Mittelkontakt)

NC = Normally closed (Ruhekontakt)

Electrotex BV Enschede Holland.



www.electrotex.nl

www.electrotex.eu

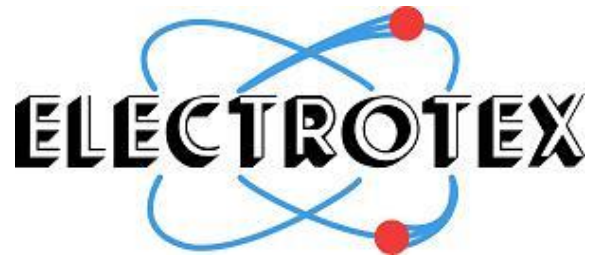
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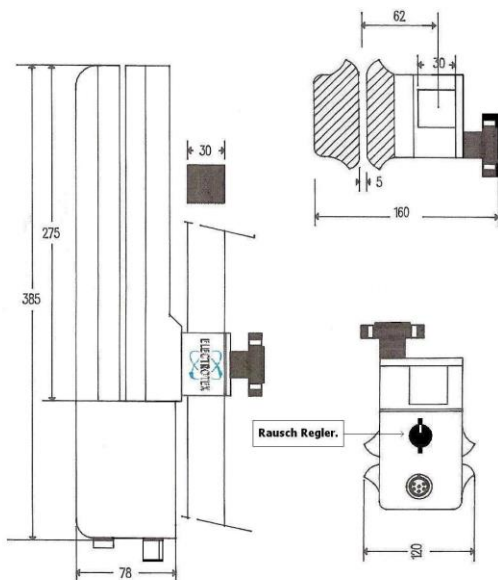
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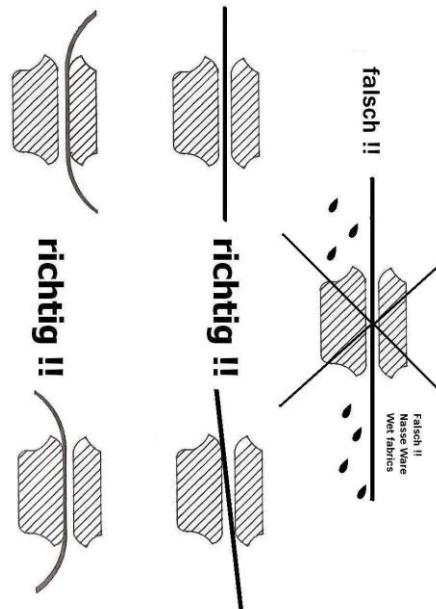


Tastkopf ET-TAS-5/SQ mit Rauschregler

TASTKOP
TASTKOPF
DETECTOR



Rausch Regler.



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