

Instructions for Eltex G3s Yarn Break Sensor

G3s is a yarn break sensor that uses piezoelectric technology to detect yarn movement (not presence) of all types of yarn in many different applications.

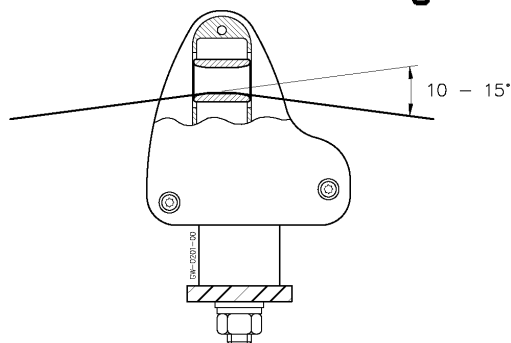
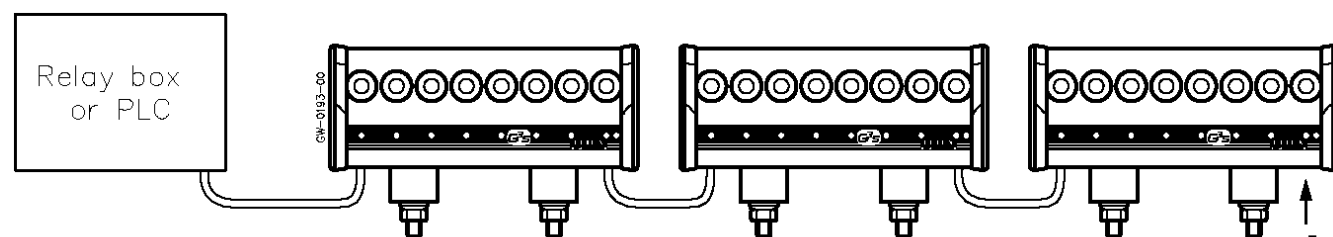
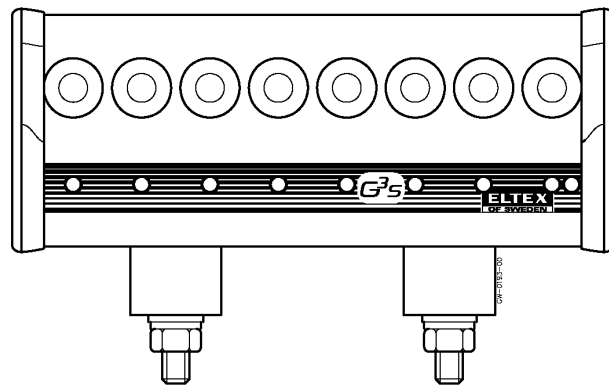
G3s does not require a Central Control Unit, making it very cost effective.

G3s is designed to detect yarn breaks on creels and other textile machines with up to 120 yarns.

G3s is available with 8, 10 and 12 eyelets.

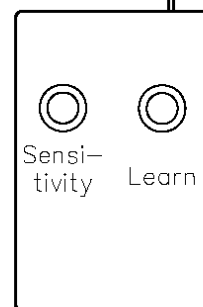
G3s sensors can be connected together.

The sensors can be connected to a PLC or many other electronic devices like relays, I/O modules, etc.



NB: Yarn must contact the ceramic eyelet.
The yarn movement will be best detected when the yarn deviates about 10–15° when it passes through the yarn sensor eyelet.

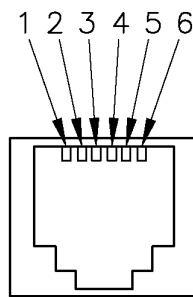
The RJ12 modular jacks on the sensors are connected electrically in parallel. Sensitivity and Learn settings can be made from the Relay box using push buttons, or from a PLC, or from the optional Eltex box.



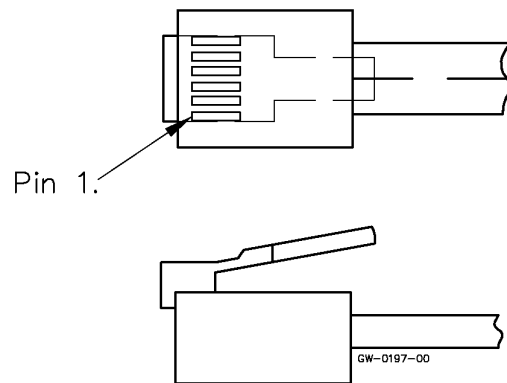
(Optional Eltex box)
(Part no 76610)

The pin configuration is as follows:

Pin	Use
1	Power supply, 17 – 30 V DC
2	Output, opto-coupler Emitter
3	Output, opto-coupler Collector
4	Input, Learn, active low
5	Input, Sensitivity, active low
6	Power supply, Ground 0 V *



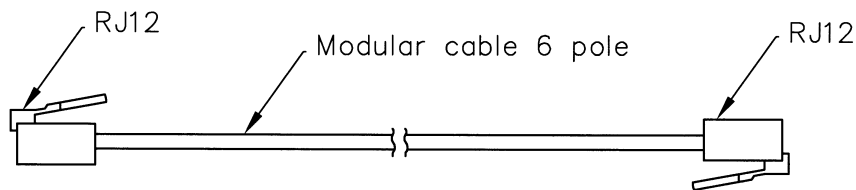
Modular jack



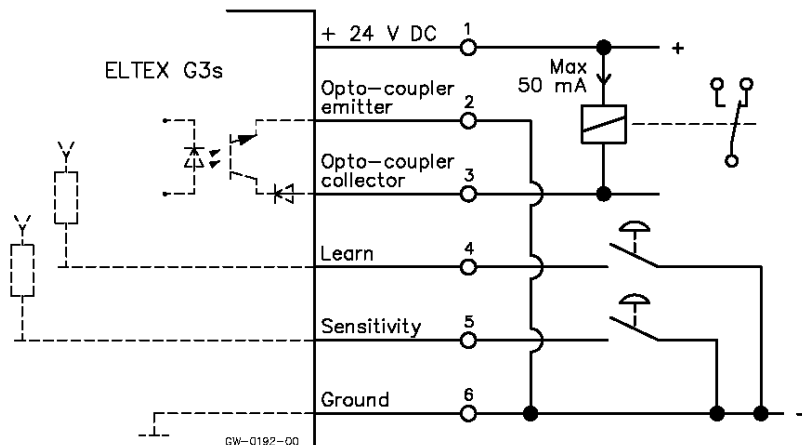
Modular cable with connector.

* NB: The negative supply must be connected to earth ground to provide proper shielding.

How to make the cable for connecting the sensors to each other:

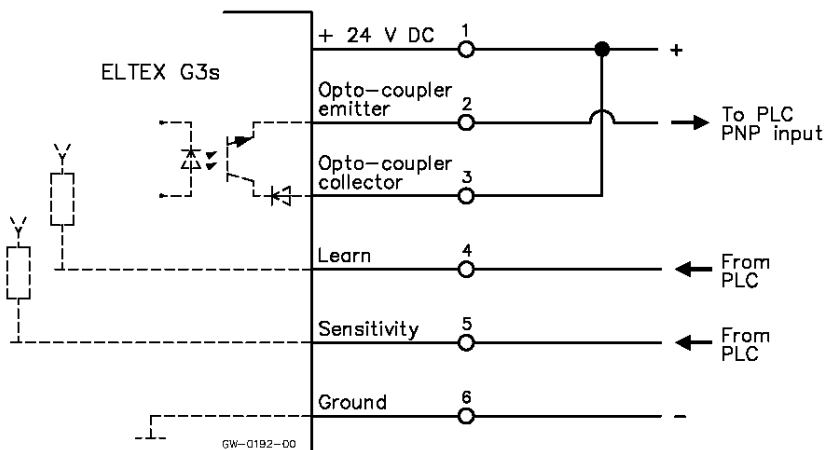


Typical connection to a relay



The relay will energise when there is no yarn movement in any learned eyelet.

Typical connection to a PLC



+24 V DC when there is no yarn movement in any learned eyelet.

Sink to ground
(Do not connect + 24 V)
For more details see "Setting sensor when using a PLC" on page 4.

Setting sensor when using push buttons

How to set eyelet positions learned and not learned:

Before the machine is started press the learn button once to clear previous settings.
Start the machine.

When the machine has reached the normal operation speed, press the learn button again.
The LEDs on all eyelets with running yarn should now be on. The LEDs for the other eyelets should be off.

When the machine is stopped the LEDs for all learned eyelets will blink slowly.

How to set the sensitivity:

The sensor has 8 different sensitivity levels, which are indicated by the LEDs:

1 LED on = low sensitivity (for very thick and / or fast moving yarns)

8 LEDs on = high sensitivity (for very thin and / or slow moving yarns)

- Press the sensitivity button momentarily and the actual setting will be displayed.
- Press the sensitivity button again. One more LED will turn on.
The sensor is now a little more sensitive to yarn movement
- When the sensitivity button has been momentarily pressed 7 times, 8 LEDs are on.
This is the highest sensitivity level for thin yarns with low speed.
- To reset, press the sensitivity button for two seconds and release.
All sensors connected will reset to the lowest sensitivity
only one LED will be on.
- After 10 seconds the LEDs return to normal status and the sensitivity setting is saved.
- The sensitivity setting can be made also while the machine is in operation.

Additional information

Parameters influencing the sensitivity:

The strength of the signal created by the yarn depends on the surface of the yarn, tension of the yarn, speed of the yarn and the deviation angle as the yarn is passes through the sensor eyelet. The material of the yarn and the weight of the yarn have less influence.

Different sensitivity settings among a group of sensors:

All sensors connected together will receive the same sensitivity setting. It is possible to set the sensitivity in the sensors independently. In this case, connect only the sensors that should have the same sensitivity. Make the setting. Disconnect these sensors and connect the other sensors. Make the setting for the other sensors. Then connect all sensors together.

Settings are saved:

The sensitivity settings will remain in the memory until new settings are made, even when the power is switched off.

The function of the LEDs

The LEDs indicate the status of the eyelets and sensitivity settings.

At power on:

The LEDs show the sensitivity setting for 10 seconds.

Machine not running:

 LED Off Eyelet position not learned.

 LED Short blink Eyelet position learned.

Machine running:

 LED Off Eyelet position not learned. No yarn movement

 LED On Eyelet position learned. Yarn is moving *

 LED Three short blinks Eyelet position not learned. Yarn is moving

* Note: The yarns must be moving in all learned eyelets before the output is changing to “open” and the indication on the LEDs will be as stated under “Machine running” above.

Setting sensor when using a PLC

How to set eyelet positions learned and not learned:

When the number of yarns has been changed and the machine operator gives the learn command: program the PLC to sink / ground pin connection 4 once before the machine starts and once again when the machine has reached normal speed.
Minimum pulse length 0,2 sec. (Do not connect + 24 V).

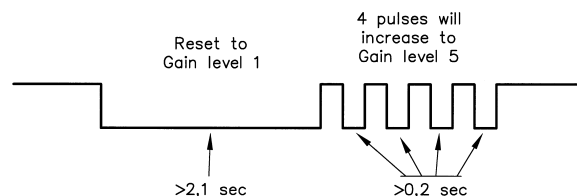
How to set the sensitivity:

When the machine operator gives the sensitivity setting command: program the PLC to sink / ground pin connection 5 for 2 seconds to reset the sensors.

Release pin connection 5.

Sink / ground pin connection 5 for minimum 200 ms. (Do not connect +24 V).

Repeat the 200ms pulse as many time as corresponds to the operator setting.



Technical specification

Power supply 17 - 30 V DC

Current consumption Max 50 mA

Output function Opto-coupler output:

The opto-coupler is open when yarns are moving in all learned eyelet positions.

The opto-coupler is closed when any of the learned eyelet positions do not have a yarn moving.

Maximum load on output 50 mA

Sensors connected together 10 sensors max can be connected together. For machines with more yarns, we recommend the Eltex EYE-system.

Dimensions

	A	B	C
16680 8 eyelet	60	132	36
16610 10 eyelet	90	162	36
16620 12 eyelet	120	192	36

