Eltex Tension Monitor

Sewing Machine Model, RS422 interfaced

The Eltex Electronic Tension Monitor (ETM) is an on-line device for sewing machines and similar applications. The device monitors the thread tension and acts as a thread break detector. It enables the operator to keep the thread tension within the desired tension range for best operation and quality of the seam.

The ETM422 communicates through an RS422 interface to a host computer. This allows the user to set limits and to watch alarms and readings on the computer display.

■ Advantages

- Improves sewing quality.

- Allows you to operate with the correct thread tension.

- Acts as a thread stop motion / thread break detector.

- Protects against overtension.

- Alerts the operator to dirt and dust in the thread tensioners.

- Makes it easier for the operator to set the correct bobbin tension.

■ Features

- Monitors thread tension according to limits set by the software through RS422 interface.

- Programmable measuring ranges.

- Programmable RS422 message with peak tension and monitor status for every stitch.

- Programmable stop filter function.

- Generates stop pulse when thread tension is outside the selected Stop Limits.

- Separate sensor head and electronics enables fitting in tight areas.

- LED indication of monitored limits and synchronization input.

- Alarm message possible through RS422 line and separate optocoupler output.

- Factory calibrated – no manual reset.
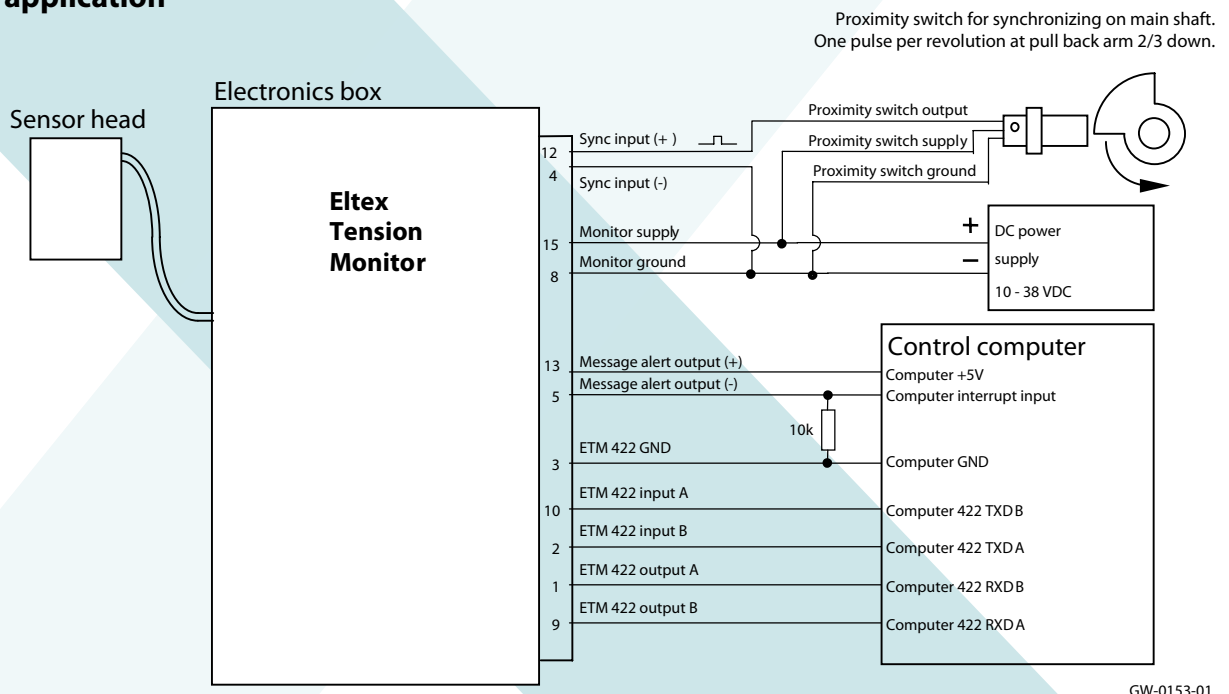
- ESD protected inputs and outputs (optocoupler).

■ Technical features

Measuring range adjusted within:	0–1200cN
Available measuring ranges:	0–128cN, 0–256cN, 0–384cN, 0–512cN, 0–640cN, 0–768cN, 0–896cN, 0–1024cN, 0–1152cN, 0–1280cN, (0–1408cN, 0–1536cN)
Stop filter:	1–15 stitches
RS422 parameters:	9600 baud, 1 start bit, 8 data bits, 1 stop bit, 1 parity bit, even parity
Supply voltage	10–38 V DC
Maximum current consumption	50 mA
Maximum start peak current	500 mA (*Note 1*)
Speed range	120–10 000 RPM
Message alert pulse length	Minimum 2 seconds
Cable length between sensor head end electronics box	100 mm (50–500 mm on request)
Electronic box dimensions	100 x 61 x 25 mm (width x height x depth)
Sensor head dimensions	25 x 42 x 29 mm (width x height x depth)
Message alert output	Optocoupler TLP127, max. 100 mA
Synchronisation input	Optocoupler TLP112, Rin 1.5 kΩ, Vin 5–35 Vdc
Working ambient temperature range	15–45°C (60–110°F)
Working ambient humidity range	0–95% RH (at 45°C) no condensation

Note 1: At supply voltage 38 Vdc and power supply start-up time = 30 ms.

■ Typical application

Proximity switch for synchronizing on main shaft.
One pulse per revolution at pull back arm 2/3 down.

Sensor head

Electronics box

Eltex Tension Monitor

12	Sync input (+)
4	Sync input (-)
15	Monitor supply
8	Monitor ground
13	Message alert output (+)
5	Message alert output (-)
3	ETM 422 GND
10	ETM 422 input A
2	ETM 422 input B
1	ETM 422 output A
9	ETM 422 output B

Proximity switch output
Proximity switch supply
Proximity switch ground

+ DC power
− supply
10 - 38 VDC

Control computer
Computer +5V
Computer interrupt input

10k

Computer GND
Computer 422 TXD B
Computer 422 TXD A
Computer 422 RXD B
Computer 422 RXD A

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