# **Eltex Tension Monitor**

# Sewing Machine Model, RS422 interfaced with miniature head



The Eltex Electronic Tension Monitor (ETM) is an on-line device for sewing machines and similar applications. The device monitors the thread tension and also 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.

The sensing head on this model has a very low profile. See drawing on page 2

## 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

Cable length between sensor head end electronics box	Part No <b>14630</b> 0,5 m, Part No <b>14631</b> 0,1 m					
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	Sensor head dimensions				
Maximum current consumption	50 mA					
Maximum start peak current	500 mA (* <i>Note 1</i> )					
Speed range	120-10 000 RPM					
Message alert pulse length	Minimum 2 seconds					
Electronic box dimensions	100 x 61 x 25 mm (width x height x depth)					
Sensor head dimensions	See drawing	<del>*</del>				
Message alert output	Optocoupler TLP127, max. 100 mA	↓ -+  <sup>3</sup>				
Synchronisation input	Optocoupler TLP112, Rin 1.5 k $\Omega$ , 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	1 power supply start-up time = 30 ms.	Ø3,2 x2				

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### Typical application



Electronics box	_	Description	
Eltex Tension Monitor	12 4 15 8	Sync input (+ ) Proximity	switch output switch supply / switch ground + DC power supply 10 - 38 VDC
	13 5 3	Message alert output (+) Message alert output (-) ETM 422 GND	Control computer Computer +5V Computer interrupt input Computer GND
	10 2 1 9	ETM 422 input A ETM 422 input B ETM 422 output A ETM 422 output B	Computer 422 TXD B Computer 422 TXD A Computer 422 RXD B Computer 422 RXD A

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

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