

Application

The **MDL-B** device is a **Quality-Control** product, based on **capacitive technology**, useful for measurement **without contact** of **textile yarn lengths**. It can also be used for **speed regulation** of the machine. More and more **metered bobbins** are needed for **twisting, dyeing, weaving, etc. activities**. **It can be used on any kind of winder (cop winders, cone-to-cone, automatic winders with clearer, etc.)**

MAIN FUNCTION

To produce bobbins of the same length (repeatability better than 0,5 % on cone-to-cone winders).

The **MDL-B** set is dispatched into 3 parts

- Capacitive sensors fixed on each bobbin position of the winding machine
- An interface supervisor (IS) which is designated to manage all the positions
- Specific mechanical brackets and wiring, relating to the machine type

A cutter, if needed can be installed on each position

PRINCIPLE

Yarn length is calculated from the **speed of the yarn**. The electrical charge variations are measured by a capacitive probe. This signal is analysed and computed through a microcomputer located in each sensor. When the bobbins are achieved, each **MDL-B** sensor gives order to cut the yarn or stop the position.

Each spindle, each window or each machine side can be monitored separately.

Linear speed should not be under 200 m / mn.

The **IS** (Interface **S**upervisor) is linked to each sensor. It has been designed to get compatibility with most of the machines available on the market. The user only has to input the length, then starting time can be obtained through machine start or through yarn running.

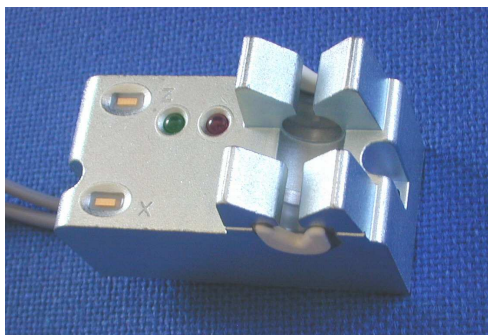
At each time and when all positions are completed, one can read on the **IS** the bobbin lengths, the average speeds of each position, the cycle times and the standard deviation.

REPEATABILITY OF THE MDL-B SET

The repeatability of a MDL-B sensor is the ability to reproduce identical lengths on x bobbins with a maximum length deviation of +/- 0,5% between the x winded bobbins (on automatic winders with clearer). It will reach +/- 0,25 % on cop or cone-to-cone winders.

ELECTRICAL PROTECTION

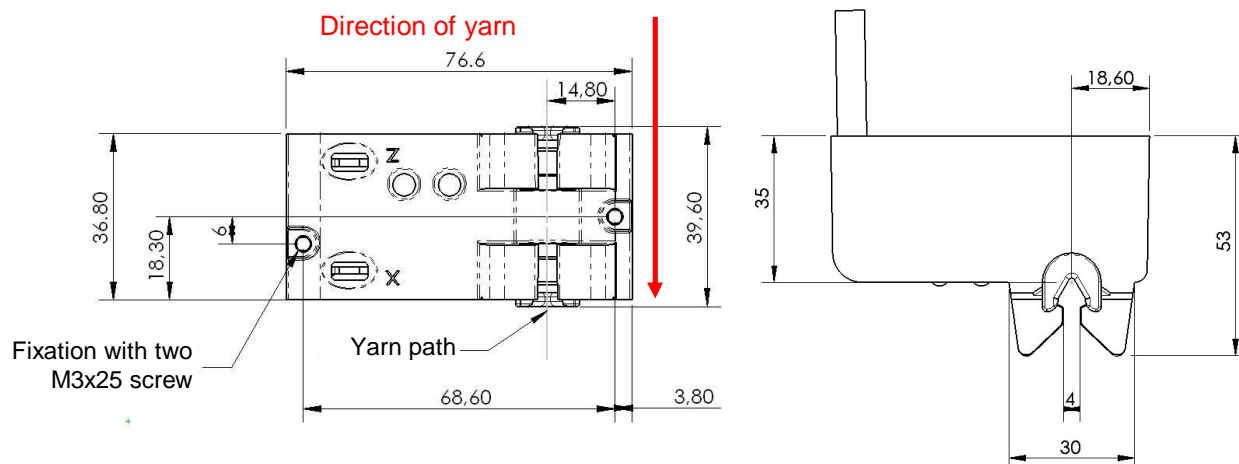
MDL-B is protected against reversed polarity and high level overload on output. **MDL-B** shows a very high level of electromagnetic compatibility (ECM)



Characteristics

- Power supply : 24 V DC
- 2 outputs**
- 2 inputs
- 2 pilot lights
- Connection by cable with (or without) connector
- Scrolling speed > 200 m / min.
- MODBUS communication protocol

Dimensions (mm)



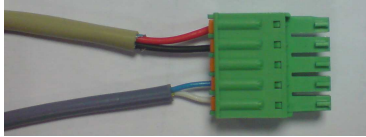
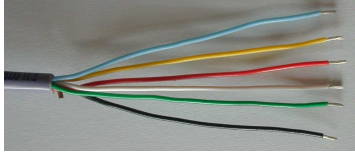
Technical characteristics

| Parameters | Conditions | Min | Typ. | Ma |
|---|--|-----------|------|------------|
| Power supply voltage (V) | | 18 | 24 | 30 |
| Current consumption (mA) | Green and red indicator Leds ON | | 80 | |
| Ripple voltage 100 Hz (V) | Mini power supply > 20,4V Maxi power supply < 28,8V | | | 4 |
| Threshold voltage on control inputs (V) | Power supply voltage = 24 V | | | |
| High level | | 12 | - | |
| Low level | | | | 4 |
| Control inputs current (mA) | Power supply voltage = 24 V | | | |
| High level | | - | - | 0.5 |
| Dropout voltage at the protected output | Output current < 1 A | | | |
| High level (V) | | - | 1,2 | 1,6 |
| Current limit for protected output (A) | Output voltage < 32 V | 1 | - | - |
| Max. voltage at protected output (V) | | - | - | 50 |
| Current switching capacity for relay output (A) | Resistive load (CosØ=1) Inductive load (CosØ=0.4) | - | - | 5 2 |
| Voltage switching capacity on relay output (V) | DC operating AC operating | - | - | 30 250 |
| Immunity to EMC perturbations (kV) | Positive and negative | | | |
| Injected | | | | 2 |
| Inducted | | | | 2 |
| Radiated | | | | 2 |
| Temperature range (°C) | For storage For operation | -20 10 | | +85 +50 |



| | | |
|--------------------------------|---|-----|
| Relative humidity (T = 25 °C) | PA / PES / PP _____ | 85% |
| | Aramid / PA/PES mix with carbon _____ | 80% |
| | Cotton / Viscose / Acetate / Wool _____ | 70% |
| | Wool mix with PA/PES/PP _____ | |

Wiring diagram

| | | |
|--|---|--|
| Power supply and Data line Connector Pin assignment |  | Red (P5) : Data line B Black (P4) : Data line A Bleu (P2) : 0V White (P1) : +24V |
| Inputs and Outputs Cable wire assignment |  | Bleu (C1) : 0V pick-up Yellow (C2) : Input E1 Red (C3) : Input E2 White (C4) : Protected output Green (C5) : Relay output a Black (C6) : Relay output b |

