QTV & Mini-SMG
Stop Motion System

General description

The QTV + Mini-SMG Yarn Stop Motion system is designed to monitor a large number of yarns. Typical applications are on warping creels, creel for winders and on yarn preparation machines. This system will help to achieve a correct number of yarns, thereby eliminating human errors.

Main features

- The detection is made with piezo electrical elements sensing the movement of the yarn.
- The sensing unit, which is insensitive to dust and dirt, will detect a broken yarn in milliseconds.
- The amount of yarns in operation is shown on a display and can easily be verified.
- The yarns are counted during the learn mode, which is started when the number of yarns is changed. For a style-change the operator activates the learn mode in which the QTV system counts the number of ends. Each eyelet position is then swiched on or off automatically.
- The system will detect if more yarns than the original amount are added by mistake. This is shown as an ANTI-fault.
- Parameters such as sensitivity and reaction time can easily be set in all yarn sensors from the operator's panel on the central control unit. All settings are universal.
- It is possible to have different settings of reaction time during the start up of the machine.
- Connections are easily made with ribbon cable connectors.

Advantages

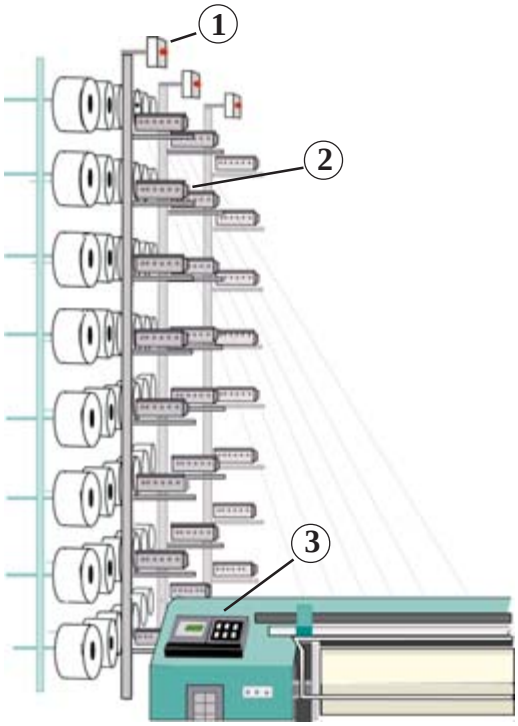
- Senses the yarn movement
- Accepts all yarn qualities and quantities
- Self learning
- Statistics
- ANTI-check
- Short reaction time
- Insensitive to dirt
- Easy to set and handle
- Minimum of maintenance
- Possible to stack
- Self test at power on

Applications

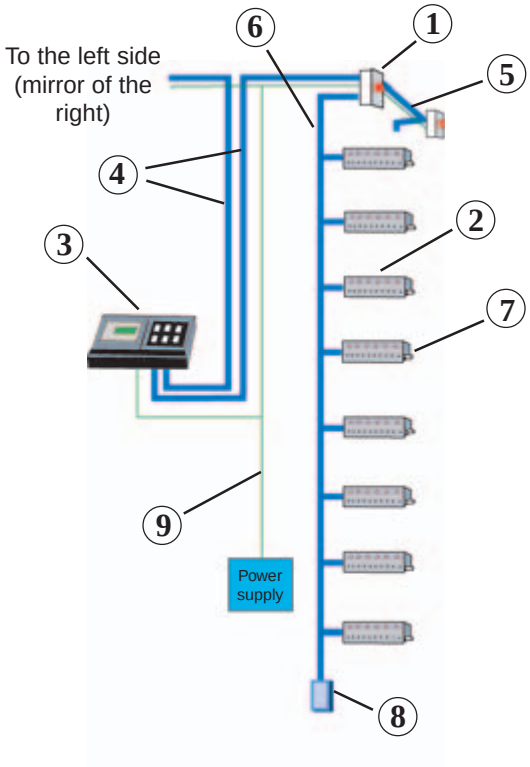
- Warping creels
- Creels for winders
- Yarn preparation machines
- Cable machines
- General multithread applications

Typical application

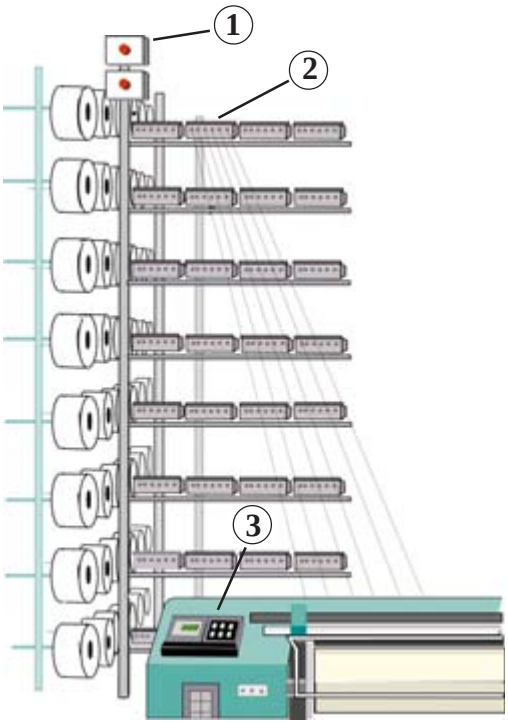
Yarn sensors along the creel



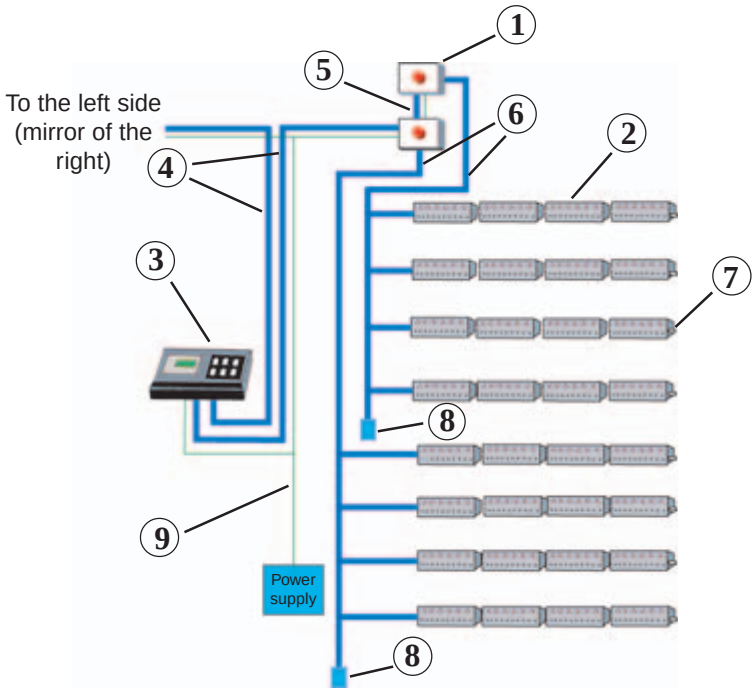
Connections



Yarn sensors at the front



Connections



1. Indication boxes
2. Mini-SMG yarn sensors
3. QTV Central Control Unit
4. Eltex 10 p shielded ribbon cable (65559)
5. Eltex 10 p ribbon cable (65553)
6. Eltex 9 p ribbon cable 65557
   (for left side cable 65556)
7. Bus terminators, yarn sensors 75014
   (for left side terminator 75013)
8. Bus terminators, cable (75012)
9. Standard cable

Technical features

The yarn sensors and the indication units contain a special circuit, which makes all communication between the devices (via 9-or 10-core ribbon cable with connectors) possible.

The QTV Mini-SMG system consists of three main parts.

- A central control unit (QTV) which is placed in front of the machine within easy reach of the operator.
- The indication box, which has a lamp, to show the section a yarn break has occurred.
- The Mini-SMG yarn sensor, mounted either along the creel or at the front of the creel.

As an option, a separate 4-digit display can be fitted at the front of the creel. Its purpose is to make the number of yarns in operation highly visible to the operator.

All settings and ”learned” information remain in the event of a power down. The yarn sensors and indication boxes have no individual addresses. This means they can be easily moved or replaced if necessary.

The system is powered either with 24 V DC from a separate power supply, or from the machine’s power supply, when available.

The bus connection between the units are made with ribbon cables and connectors. See picture on page 2. These cables are manufactured by Eltex using measurements specified by the customer.

Central control unit QTV

The QTV contains the intelligent part of the system. A display shows the actual status of the yarns being monitored; for instance, when a yarn break has occurred. Indication lamps show the status of the system.

Access to the setting menu is via the keyboard.

There are 4 levels on the menu:

a) Daily operation (relearn)

b) Statistics

c) Service and fault finding

d) System parameter setting (i.e. sensitivity and delays). Factory default settings can be reinstalled at any time from the memory.

During daily usage there are normally no changes that have to be made to the settings.

Mini-SMG yarn sensor

The yarn sensor monitors the yarn and determines by the movement of this yarn if it is broken. To get the best detection of the yarn movement, the yarn should form a small angle through the eyelet (10–20°). During the ”learn mode period”, the yarn sensors memorise the eyelets which have moving yarns, and switches these eyelets on for the rest of the running period. When the number of inserted yarns is changed the operator will initiate the ”learn mode” again.

By means of a small indication lamp on the yarn sensor it can be determined if the yarn sensor has power on, is in the learn mode, or is actually monitoring the yarn movement.

Each eyelet also has an individual lamp, which shows the position of a yarn break, or where an extra yarn is pulled in by mistake. The fitting can be at the front of, or along the creel. For the quickest detection, fitting along the creel is preferred. From the performance to price ratio, a fitting with yarn sensors on every second or third section is a solution to consider. (See also leaflet of Mini-SMG yarn sensor).

Indication box

The purpose of the indication box is to distribute the signals to and from the yarn sensors connected directly to it, and to the other indication boxes. It has a large lamp showing the section where a yarn break has occurred.

Specifications

System

Power supply	20–30 V DC filtered
Stopping time	Typical 70 ms
Minimum yarn speed	Approx 30 m/min.

Central control unit

For up to 2 x 25 Indication boxes.

Current consumption	300 mA
Inputs	Power Indication boxes (left) Indication boxes (right) Running mode, (opto isolated) Learn mode (external button)
Outputs	Stop relay 10A/280V -AC or 10A/20V DC. Two indication relays 2A/30V DC (left & right).
Display	4x20 character display Red lamp for stop Green lamp for running mode

Indication box

For up to 16 Mini-SMG yarn sensors/each box

Current consumption	100 mA (box & lamp)
Inputs	Power Four connectors for Mini-SMG cables. Central control unit or previous indication box.
Outputs	To next indication box.
Indicators	Lamp 24 V 2W BA9s

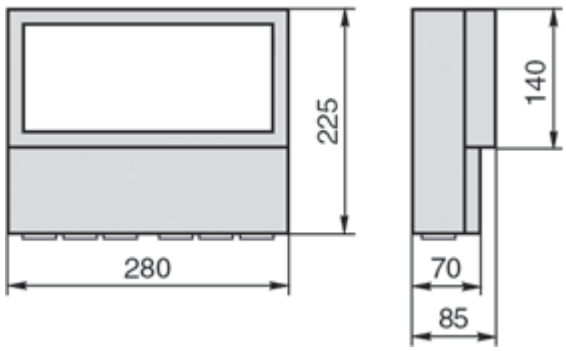
Mini-SMG yarn sensor

See also separate leaflet for Mini-SMG yarn sensor
Available with 8, 10 and 12 eyelets

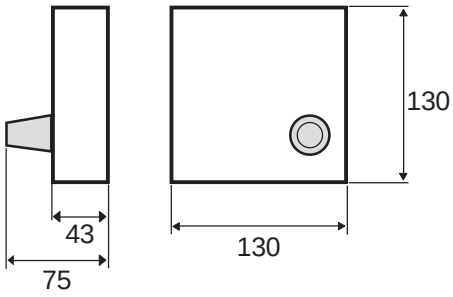
Current consumption	65 mA per yarn sensor
Eyelets	Diam. 6 mm ceramic
Eyelet spacing	15 mm
Scanning speed	Typical 2 ms per eyelet
Outputs	9-pole D-sub connection
Indicators	One red lamp per eyelet for yarn indication. One green lamp per yarn sensor for running mode indication.

Dimensions

Central control unit



Indication box



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