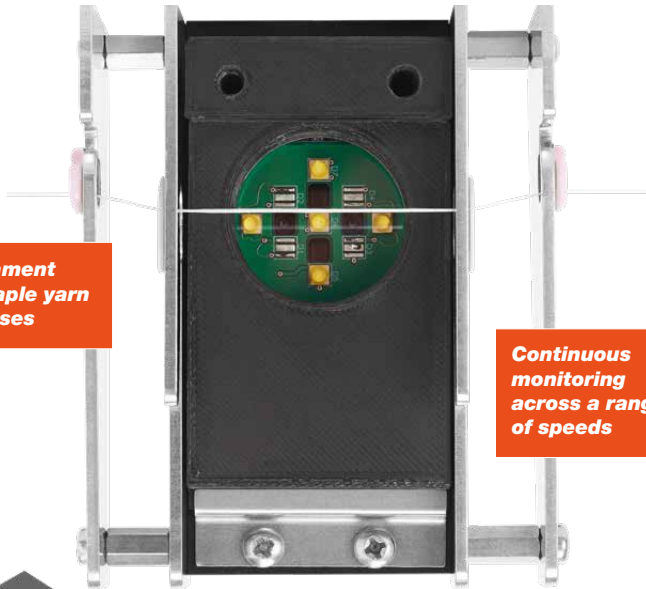




DigiClear

**Optimise high quality end product.
Reduce wastage.**

DigiClear digital yarn imaging sensors



**For filament
and staple yarn
processes**

**Continuous
monitoring
across a range
of speeds**

DigiClear Benefits

- **Cost saving**
 - Optimise process for high quality end product.
 - Minimise penalty claims from downstream processes.
- **Continuous automated monitoring**
 - Unattended monitoring with abnormal event notification.
- **Improved yield of high quality product**
 - Improve yield of high-quality product.
 - Minimise offline testing, and product storage pending testing.
 - Move product direct from production line to despatch.
- **Reduced Wastage**
 - Minimise wastage of supply materials & power.
- **System integration**
 - Ethernet connectivity (POE) network infrastructure totally under customer management.
 - System integration is easily achievable with use of the open MQTT publish/subscribe model.
- **Data storage**
 - User's database can be directly populated directly from the sensor with suitably configured brokers residing on the host (eg MQTT broker and Node Red).
 - A custom host application is not required for population of the database.



- ✓ **IOT Real time event capture and results analysis**
- ✓ **Reflective image**
 - Contamination detection
- ✓ **Accurate profile detection**
 - Breakages
 - Knots
 - Fraying
 - Denier measurement

Measurement parameters

Reflective image

Identify and monitor:

- ✓ External contamination
- ✓ Process colour variability
- ✓ Dope dye consistency

Profile Edge detection

- ✓ Denier measurement
- ✓ Denier consistency
- ✓ Knot detection
- ✓ Broken filament detection
- ✓ Slub detection
- ✓ Ply loss detection
- ✓ Hairiness measurements
- ✓ Twist measurement
- ✓ Break detection



Find out how DigiClear can benefit your business

Call: +44 (0)1282 862 703

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Certificate Number 12230
ISO 9001



DigiClear

Digital yarn imaging sensors

Digital imaging vs analogue sensing element

	DigiClear	Analogue sensor
Method	Reflected image Capable of identifying characteristics and features in the image	Shadow intensity Can only detect changes in the shadow cast by the yarn
Yarn Mis-alignment	No effect	Mechanical and optical mis-alignment causes non-linear signal effects
Temperature and humidity	No effect	Sensitivity changes
Yarn instability in sensor	No effect	Causes false signal
Component variability	Negligible and self-compensating	Wide variability limits the range of self-compensation
Fine pitch multi threadline applications	Fully capable	Limited by physical size of optical components
Sensor cleanliness monitoring	Only 1 window subject to deposition Continuous monitoring for window contamination	2 elements vulnerable to deposition Compensation across both emitter and receiver. Partial contamination or moving yarn swarf on the receiver cannot be detected and compromises signal integrity
Sensor Cleaning by air	Yes, at any time	Yes, but only when monitoring is suspended due to yarn stability problem
Calibration	Not Required	To achieve absolute profile variation measurements, per sensor calibration is required
Absolute profile measurement	Yes	No, can only measure profile variability
Installation	POE switch can be located far from sensors	Requires secondary processing unit close to sensors.
System resilience	Self contained sensor, storing all data locally	Requires secondary processing unit and PC application to be active for continuous monitoring. Susceptibility to PC failure/down time
Communication	Ethernet MQTT publish/subscribe allowing independence from custom PC application	Custom PC application is required to communicate with secondary processing unit
IP rating	IP67	Sensors can be IP67, but secondary processing unit has to be located in a cleaner environment
Measurement & Sensitivity drift	No	Yes, due to temperature and humidity
Alignment issues	No	Yes with variations in optical and mechanical axis of analogue sensing components
Non-linear response across optical beams	No	Yes, resulting in false signals as the yarn move laterally in the sensing zone
Wide variations	No	Yes, in the response of analogue optical components
Physical limitations	No	Yes, on applications with fine pitch multi-threadline requirements



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