



## **Tubing Ovality Monitor**

***TOM***



### ***User Manual***

Courtenay House, Monument Way East, Woking, Surrey GU21 5LY, U.K.

Tel: +44-844 443 7925 Fax: +44-844 443 7928

Email: [support@medcotas.com](mailto:support@medcotas.com)

Home Page: <http://www.medcotas.com>

Tubing Ovality Monitor - <i>TOM</i> .....	3
Laser measuring head .....	3
Cables Bundle .....	4
Connections.....	5

## **Tubing Ovality Monitor - *TOM***

Tubing Ovality Monitor is a system to measure coiled tubing string ovality.

- Diameter sizes from 1" to 2".
- Very high scan rate (measuring frequency).
- Highly precise measurements.

### ***Laser measuring head***

This is the actual sensor device. The laser measuring head has laser transmitters and receivers. For as long as the pipe remains within an area of 64 x 64 mm squared, the laser measuring head will measure the pipe ovality accurately and is actually programmed to make 10 readings per second. Thus even at coiled tubing speeds of 120 ft/min, the device will measure the ovality 5 times per foot.



**Laser measuring head**

The laser measuring head requires 230 VAC to operate and transmits data to the *controller HMI* through a serial port (*RS-232*).

Furthermore, in extreme weather conditions it is necessary to keep the laser device at a reasonable operating temperature. The optimum temperature range is between 0°C to 45°C. Thus, the laser measuring head is equipped with a climate control sub-system which will self-start once the conditions approach uncomfortable. This climate control system utilises 12 vdc power and can be supplied directly from a truck battery. The current drawn by the climate control system would be around 15 amps.

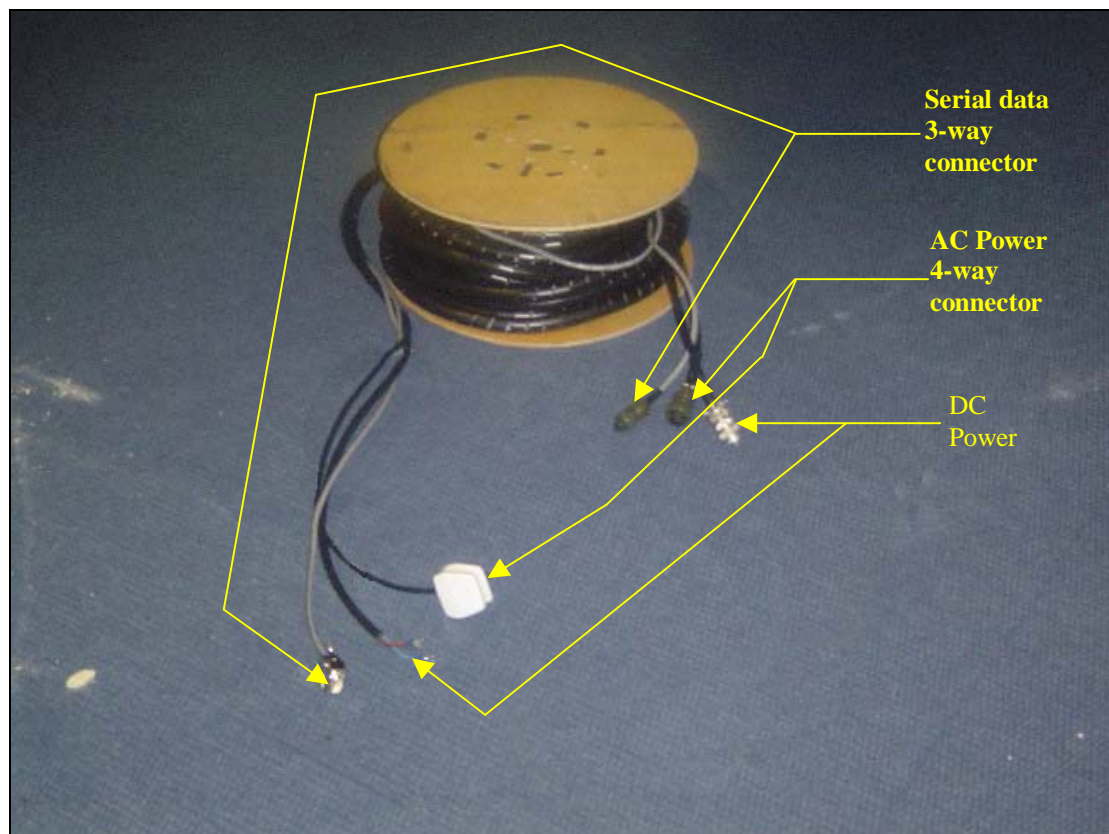
The communication between the controller HMI and the laser measuring head is through a serial port (*RS-232*).

The controller HMI saves the *Depth, Ovality, Ballooning, Necking, Maximum Diameter, and Minimum Diameter* data every 1 second.

### **Cables Bundle**

A cable bundle consisting of four individual cables is supplied with the unit. Each cable is used for a specific task:

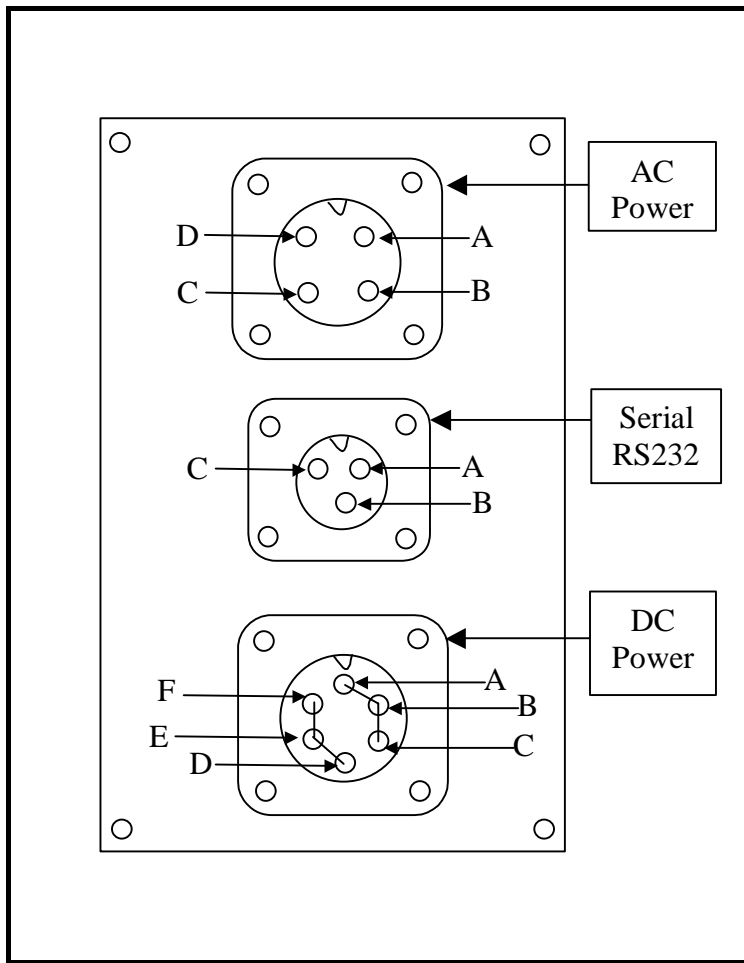
1. **Serial data cable:** This cable is used for connecting between the serial port on the *control HMI to the laser measuring head*.
2. **AC Power:** This cable is used to supply the *laser measuring head* with AC power. Plugs directly to a power socket.
3. **DC Power:** This cable is used to supply DC power to the *climate control system* within the *laser measuring head*. Can be connected directly to a truck battery, hence the connections to the battery are loose.



Cables bundle

## *Connections*





Front view of chassis mount connectors  
On the side of the Laser Measuring Head

AC Power – 4 way connector

A = Live

B = Neutral

C = Ground

D = Not connected

Serial RS232 – 3 way connector

A = Pin 2 on 9-way D-type connector for serial RS232

B = Pin 3 on 9-way D-type connector for serial RS232

C = Pin 5 on 9-way D-type connector for serial RS232

DC Power – 6 way connector

A = +12 vdc

D = Ground or 0 vdc

Short A, B, and C on both 6-way connectors, i.e. on the chassis mount male and cable mount female

Short D, E, and F on both 6-way connectors, i.e. on the chassis mount male and cable mount female