

Optimec[®] TC20i

Soft contact lens metrology

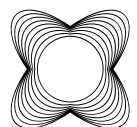


© Optimec Limited 2016

Optimec Document No D20146-00

User Manual & Operating Instructions

- *Fully Electronic*
- *Full Saline Filtration*
- *Compact Dimensions*
- *Compatible with JCF, JCM*
- *Wide Operational Range*
- *SAG, JCFD and is830*
- *User Selectable from 15-40°C*



OPTIMEC[®]

ENGLAND
www.lenser17.com

User Manual & Operating Instructions

Contents

Front Cover - Photograph of TC20i Instrument

Page 1 - Contents

Page 2 - Instrument Overview and Control Panel

Page 3 - Instrument Set-Up Details

Page 4 - Instrument Operating Instructions

Page 5 - Maintenance

Page 6 - User Information: Peristaltic Tube Replacement

Page 7 - User Information: Filter and Tube Replacement

Page 8 - Technical Specifications

Page 9 - Guarantee Conditions

Page 10 - Certificate of Conformity

Back Cover - Contact Details

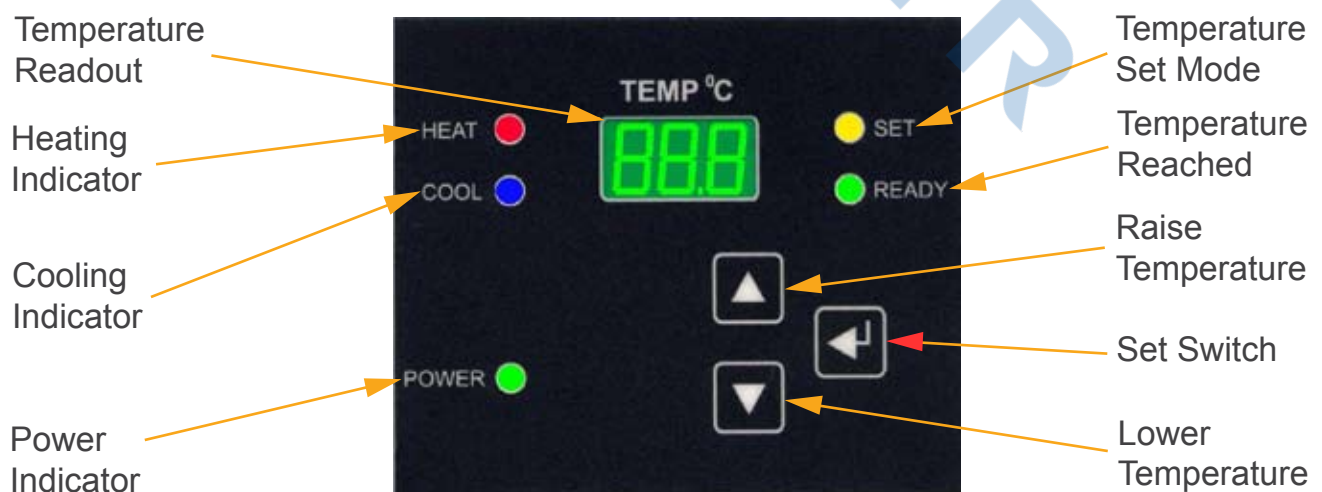
TC20i Temperature Control Instrument

Overview

Designed to work with Optimec JCF, JCM, JCFC, SAG and is830 instruments, the TC20i provides a neat and efficient solution, to enable the measuring and inspection of soft contact lenses at a constant temperature. With full electronic control the TC20i can maintain cell measuring temperature within the range 15 - 40 Degrees Celsius (+/- 0.5deg).



Control Panel



TC20i Temperature Control Instrument

Set-Up Detail

1. Position the TC20i to the right of the Optimec JCF, JCM, SAG, JCFD or *is830* instrument.
2. On the left hand side of the TC20i is a cooling fan and it is **EXTREMELY IMPORTANT** that it is not obstructed, and that a minimum 10cm space is maintained between it and any other object. Failure to do will restrict the air flow and may result in the failure of the internal heat exchanger.
3. Take the clear silicon tube leading from the top of the Peristaltic Pump and connect to the plastic tube connector on the right hand side of a JCF and JCM analysis cell or to the upper connector of the manifold block on the right hand side of a SAG instrument.
4. Take the clear silicon tube leading from the side of the TC20i cabinet (longest tube) and connect to the plastic tube connector on the left hand side of a JCF, JCM, JCFD or *is830* analysis cell or to the lower connector of the manifold block on the right hand side of a SAG instrument.
5. Position the temperature sensor in the analysis cell of the JCF or using the clip bonded into the analysis cell of a JCM, SAG or *is830* instrument.
6. Fill the analysis cell with saline to the correct level (see JCF, JCM, JCFD, SAG or *is830* manual).
7. Insert the power lead included with the TC20i into the plug at the rear of the instrument and switch on the power at the wall. Switch on the TC20i using the switch at the rear of the instrument.
8. The Green LED (Power) will illuminate to confirm that the instrument is on.
9. When switched on the Peristaltic Pump will rotate and draw saline from the analysis cell. As this happens, the saline level in the cell will fall and bubbles will be seen as the pump expels air during priming. Top up the saline level in the cell until bubbles no longer appear.

WARNING:

IF SALINE IS SPILT, DISCONNECT THE TC20i FROM THE ELECTRICAL SUPPLY

Avoid spilling saline on the TC20i as it is very corrosive, damaging the paintwork, and should it come into contact with the electronics, may cause a serious instrument failure and possibly a risk of electric shock.

WARNING:

DISCONNECT FROM THE POWER SOURCE if the side panels may be removed to check that no saline is in the cabinet, and left to dry naturally if there is. This is the only circumstance for the side covers to be removed as there are no user serviceable parts within the cabinet.

TC20i Operating Instructions

Temperature Adjustment

When the TC20i leaves Optimec, it will be set to a working temperature of 20 Degrees Celsius. Should this be the temperature you wish to work at, you will not need to make any adjustments to the instrument.

The working temperature can be changed if required in 0.1 Degree Celsius increments in the range 15 - 40 Degrees Celsius.

Should you wish to change the working temperature, proceed as follows:

1. On start up the instrument is in Working Mode with the Green LED (Power) illuminated.
2. Press the Return Arrow (Set Switch) to illuminate the Yellow LED. The instrument is now in Temperature Set Mode.
3. Using the Up Arrow (Raise Temperature) or the Down Arrow (Lower Temperature), press until the required temperature is displayed on the Temperature Readout.
4. Press the Return Arrow (Set Switch) returning the instrument to Working Mode.
5. If the Return Arrow (Set Switch) is not pressed within 10 seconds of using the Up and Down Arrows the instrument will automatically return to Working Mode set with the last selected temperature.

Working Mode

1. On start up the instrument is set in Working Mode.
2. The Blue LED (Cooling Indicator) or Red LED (Heating Indicator) will illuminate until the saline solution reaches the set temperature.
3. When the set temperature has been achieved the Green LED (Temperature Reached) will illuminate.
4. The TC20i will maintain the set temperature within +/- 0.5 Degrees Celsius.
5. As the electrical load required to achieve set temperature varies, it is normal for the note of the fan to change.

TC20i Operating Instructions

Maintenance

The TC20i is a very reliable instrument, and if used carefully, will function reliably for many years. In order to keep your TC20i in the best condition, Optimec strongly recommend that the following procedures are carried out as part of a planned maintenance regime.

PERISTALTIC PUMP TUBE: The peristaltic pump tube will wear over time and the pump efficiency will fall as a result. Any reduction in the quantity of saline flowing through the TC20i can have a dramatic effect on the capabilities of the unit and may lead to the failure of the internal heat exchanger.

Daily visual inspection of the tube will show if the tube has worn and will be seen as a permanent flattening.

When used 8 hours per day, 5 days per week it is recommended that the tube be replaced at 3 monthly intervals.

Replacement peristaltic tubes are available direct from Optimec. Refer to Page 6 for replacement procedure.

CARTRIDGE FILTER: The disposable cartridge filter removes debris from the saline solution down to 25 microns. Over time the filter will become blinded as particulates are removed from the saline solution. A blinded filter will reduce the flow of saline which will effect the capabilities of the unit and may result in heat exchanger and/or pump failure.

When used 8 hours per day, 5 days per week it is recommended that the filter be replaced on a monthly basis.

Replacement cartridge filters are available direct from Optimec.

TEMPERATURE SENSOR: The sensor is a serviceable part and failure is indicated when the Temperature Readout displays the message "ERR".

Spare temperature sensors are available direct from Optimec.

Peristaltic Tube Replacement



First remove the external tubes from the peristaltic pump.

Then use a flat bladed screwdriver to prise the pump rotor cover from the rotor casing.

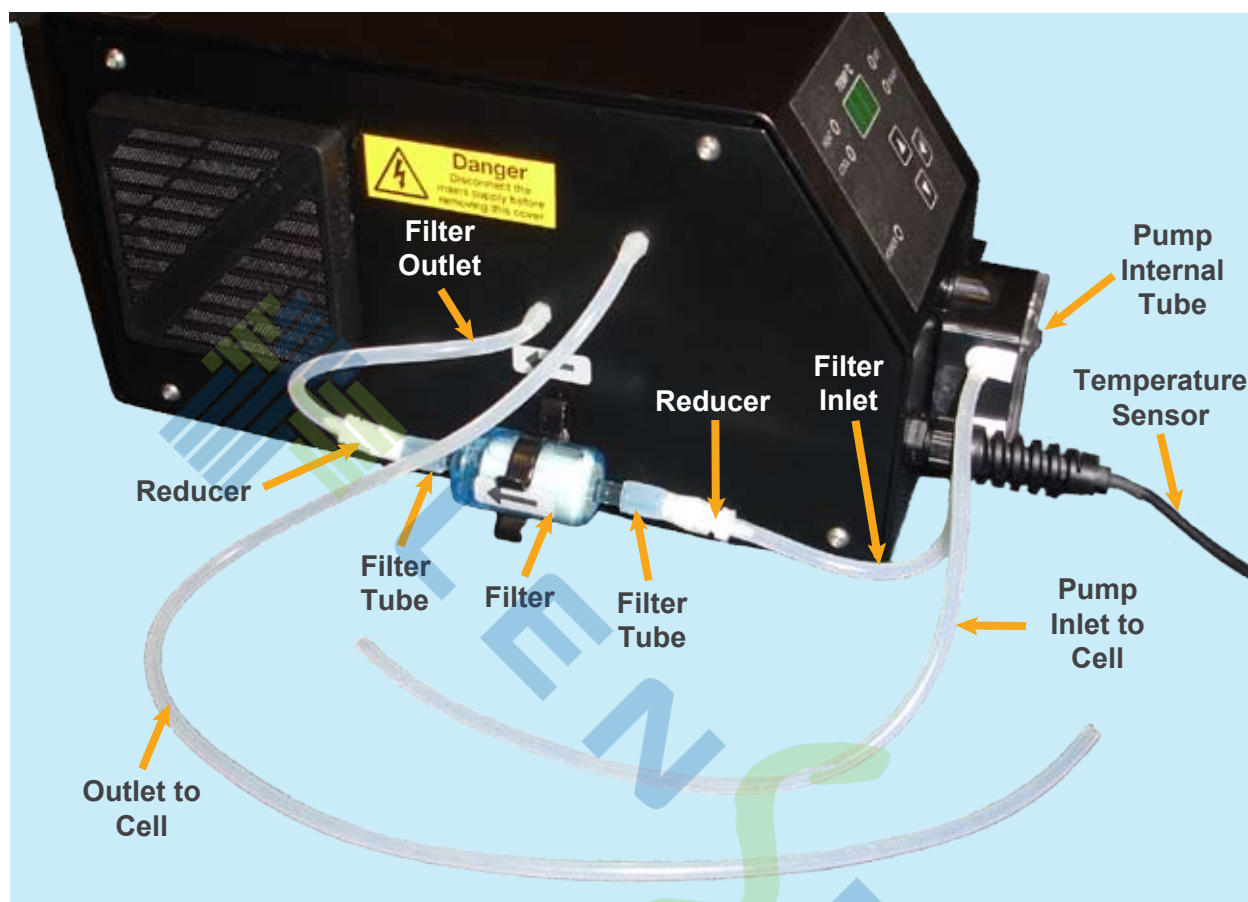


Slide the peristaltic tube from under the the pumphead rotor by hand.

Discard the old tube and fit the new tube by reversing the removal procedure.

Refit the pump rotor cover before use to protect the operators fingers from injury.

Filter and Tube Replacement



The Cartridge Filter is held in place by a clip and the tubes are a push fit onto the tubing connectors and reducers. Please ensure when replacing the tubing that the tubes are pushed fully over the connectors and that there are no kinks present. On start up check that there are no leaks. If leaks are found turn off the TC20i immediately and recheck all tube connections.

DESCRIPTION	NUMBER	LENGTH (mm)	INSIDE DIAMETER (mm)	WALL THICKNESS (mm)
Pump Inlet to Cell	1	300	1.6	1.6
Outlet to Cell	1	550	1.6	1.6
Filter Inlet	1	120	1.6	1.6
Filter Outlet	2	120	1.6	1.6
Filter Tube	2	30	4.8	1.6
Pump Internal Tube	1	115	2.5	1.6
Tube Reducer	2	ALL TUBING PUMPSIL SILICON		
Filter Cartridge	3			

TC20i Instrument Specification

Height (mm)	Width (mm)	Depth (mm)	Weight (kg)	Electrical Options	Power Connection	Approx Power Consumption (watts)
160	120	310	7	100 - 120, 220 - 240 Volts 50 - 60Hz	I.E.C. (CEE22) 3 Pin Connector	72

Instrument Fuse	Temperature Control Range °C	Temperature Variable Range °C	Ambient Temperatures
1 x 2 Amps Anti-surge	15 - 40	+/- 0.5	The TC20i has the ability to cool to approx 12°C below ambient temperature

Important

The TC20i is an electrical driven instrument and as such, if not used correctly, can be a source of electric shock and therefore could be hazardous to life if the following precautions are not observed.

NEVER operate the instrument in damp or wet conditions.

NEVER run the instrument with the covers removed.

NEVER operate the instrument from a voltage other than that specified on the serial plate on the rear of the cabinet.

UNAUTHORISED disassembly, repair or modification will void the one year warranty and could result in injury or electric shock.

If a fault should develop, switch the instrument off and remove the electrical supply lead. You should then contact Optimec Limited and refrain from using the instrument until guidance is received.

If for any reason the TC20i requires servicing or repair after the the warranty period, please contact Optimec.

Guarantee Conditions

The conditions and performance of Optimec instruments are guaranteed for a period of one year. The guarantee period commences from the date of sale.

We guarantee the elimination of all faults arising from materials or manufacture. The guarantee will be fulfilled either by repair or replacement of faulty parts at our option.

The guarantee does not apply to parts subject to wear nor to damage or defects caused by improper treatment or incorrect maintenance.

No guarantee is granted for products that have been modified in any way unless agreed by the manufacturer in writing in advance.

LENSER

EC Declaration of Conformity

EC Declaration of Conformity

In accordance with BS EN ISO/IEC 17050-1:2010

We: Optimec Limited

Of: Unit B3, Haysfield Business Centre, Spring Lane North, Malvern, Worcestershire, WR14 1GF, UK

declare that:

Equipment: Temperature Controlled Pumping System
Model name/number: TC20I

The following CE Marking Directives are applicable:

2006/42/EC

Conforms with the essential health and safety requirements of the Machinery Directive and its amending Directives

2004/108/EC

Conforms with the essential protection requirements of the Electromagnetic Compatibility Directive and its amending Directives

and has been designed and manufactured to the following standards:

EN 61010-1:2010

Safety requirements for electrical equipment for measurement, control, and laboratory use. General requirements

EN 61326-1:2006

Electrical equipment for measurement, control and laboratory use — EMC requirements — Part 1: General requirements

EN 61000-3-2:2006

Electromagnetic compatibility (EMC). Limits. Limits for harmonic current emissions (equipment input current ≤ 16 A per phase) +A2:2009

EN 61000-3-3:2008

Electromagnetic compatibility (EMC). Limits. Limitation of voltage changes, voltage fluctuations and flicker in public low-voltage supply systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connection

I hereby declare that the equipment named above has been tested and found to comply with the relevant sections of the above referenced specifications. The unit complies with all essential requirements of the Directives.

Signed by:

Name: Andrew Perkins

Position: Director

Done at: Optimec Limited

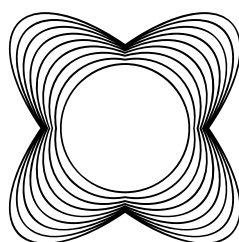
On:

7 AUGUST 2012



Contact Details

**Designed
and
Manufactured
by**



OPTIMEC[®]
E N G L A N D

The Haysfield
Spring Lane North, Malvern
Worcestershire WR14 1GF
England

Telephone +44 (0)1684 892859 Fax +44 (0)1684 893037
E-mail: enquiries@optimec.com

www.optimec.com

Optimec is accredited to
BS EN ISO 9001:2008
For the provision of lens measuring
and lens inspection instruments
Certificate No. GB2002543



OPTIMEC is a Registered Trade Mark Internationally No. 2646632, 1159230, 102007762