

ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Visit our website - *Click HERE*

MODEL 300C AND MODEL 300CD VARIABLE FREQUENCY OPTICAL CHOPPER

Issue 1.2

Bartles Industrial Estate
North Street
Redruth
Cornwall TR15 1HR
United Kingdom

t. +44 [0]1209 314608
f. +44 [0]1209 314609
f2. +44 [0]870 1600860

i. www.scitec.uk.com
e. scitec@scitec.uk.com

Director. JW Smith Ph.D

Scitec Instruments Ltd
Registered in England
No. 1535664

Registered Office
1 Jefferson Court
6 Marine Drive West
Bognor Regis
West Sussex
PO21 2QA

1 INTRODUCTION

The model 300 optical chopper consists of a remotely mounted chopping head connected by a cable to a control unit.

2 UNPACKING

When the Model 300 is shipped, the control unit, chopping head, chopping discs and interconnecting cable are individually packed. The chopping discs are packed between pieces of plywood or polystyrene and must be unpacked with extreme care.

3 ASSEMBLY

First, slot the bottom edge of the chopping disc into the slot formed by the reference pick-up. Second, mount the disc onto the brass mounting boss fitted to the motor spindle using the three M3 screws provided. DO NOT SLACKEN THE GRUB SCREWS FITTED TO THE BOSS OR ATTEMPT TO CHANGE THE POSITION OF THE BOSS ON THE SPINDLE.

Using the cable supplied, connect the chopping head to the socket on the rear panel of the control unit.

BEFORE CONNECTING THE POWER LEAD, ENSURE THAT THE VOLTAGE INDICATED ON THE REAR OF THE UNIT IS CORRECT. DAMAGE TO THE UNIT COULD RESULT IF THE WRONG VOLTAGE IS APPLIED. A voltage selection switch is mounted inside the unit. To remove the instrument cover remove four screws, two on either side of the instrument case and lift the cover. MAKE SURE THAT THE MAINS LEAD IS DISCONNECTED BEFORE OPENING COVER.

Bartles Industrial Estate
North Street
Redruth
Cornwall TR15 1HR
United Kingdom

t. +44 [0]1209 314608
f. +44 [0]1209 314609
f2. +44 [0]870 1600860

i. www.scitec.uk.com
e. scitec@scitec.uk.com

Director. JW Smith Ph.D

Scitec Instruments Ltd
Registered in England
No. 1535664

Registered Office
1 Jefferson Court
6 Marine Drive West
Bognor Regis
West Sussex
PO21 2QA

4 OPERATION

4.1 Fuse

The line fuse in this instrument is mounted on the printed circuit board. Before changing the fuse, ensure that the unit is isolated from the line supply. Replace only with a 1 Amp 20mm x 5mm semi-delay fuse.

4.2 On/Off

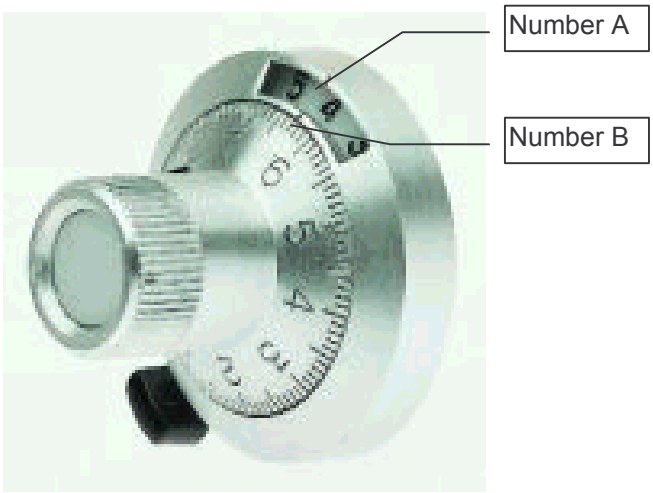
Power to the control unit is controlled by the ON/OFF switch located on the right side of the front panel. The model 300C is fitted with a red LED indicator above the switch which lights when the unit is switched on. The frequency display of the model 300CD lights when the power is switched showing initially a test pattern of 88888 and then the current software revision (currently 1.03). It then changes to 0.00 before finally showing the current chopping frequency.

4.3 Chopping Frequency – Internal Control

For internal control of the chopper motor speed, the EXT/INT switch needs to be set to INT.

The model 300CD chopper control unit is fitted with an LED display which reads the chopping frequency correctly for all discs. The frequency is set by the front panel mounted FREQUENCY control knob.

The model 300C frequency control is fitted with a 10 turn dial. The current frequency in Hz can be calculated by appending number A to number B and then multiplying by the number of slots in the chopping blade being used. For example, on the dial below, A=4 and B=6.3. If a 30 slot blade is in use then the chopping frequency is 4 6.3 x 30 = 1389Hz.



Chopping Frequency = A B x Number of Slots in Blade

4.4 Chopping Frequency – External Control

The instrument can be externally controlled by an applied voltage via the front panel mounted BNC type CONTROL IN socket. For this mode of operation the EXT/INT switch must be placed in the EXT position.

The chopping frequency is linearly controlled by the externally applied voltage to the CONTROL IN socket. Maximum input voltage is 15v, input impedance is 20 kΩ. In this mode the FREQUENCY control is

Bartles Industrial Estate
North Street
Redruth
Cornwall TR15 1HR
United Kingdom

t. +44 [0]1209 314608
f. +44 [0]1209 314609
f2. +44 [0]870 1600860

i. www.scitec.uk.com
e. scitec@scitec.uk.com

Director. JW Smith Ph.D

Scitec Instruments Ltd
Registered in England
No. 1535664

Registered Office
1 Jefferson Court
6 Marine Drive West
Bognor Regis
West Sussex
PO21 2QA

used to set the proportionality between the input voltage and chopping frequency.

A common fault is to have the frequency dial set to 0 when applying an external voltage. With the dial in this position the motor will not turn, no matter what the applied voltage. The usual position for the dial when in external mode is turned clockwise to its maximum.

4.5 Chopping Frequency Display – 300CD Only

The 5 digit LED frequency display on the 300CD control unit shows the current chopping frequency directly. It auto scales so that it gives up to 0.01Hz resolution where possible.

The 1 SEC / 10 SEC switch on the front panel selects the averaging period over which the frequency measurement is taken.

4.6 Reference

The reference signal is output from a BNC socket on the front panel of the control unit. This signal is a HCT TTL square wave at the chopping frequency and has a constant phase relative to the chopping action.

4.7 Frequency range

The following table gives the maximum usable frequency range for each blade.

2 slot blade	5 to 200 Hz
5 slot blade	12.5 to 500 Hz
10 slot blade	25 to 1000 Hz
30 slot blade	75 to 3000 Hz
200 slot blade	500 to 20000 Hz
445 slot blade	1000 to 42000 Hz

Bartles Industrial Estate
North Street
Redruth
Cornwall TR15 1HR
United Kingdom

t. +44 [0]1209 314608
f. +44 [0]1209 314609
f2. +44 [0]870 1600860

i. www.scitec.uk.com
e. scitec@scitec.uk.com

Director. JW Smith Ph.D

Scitec Instruments Ltd
Registered in England
No. 1535664

Registered Office
1 Jefferson Court
6 Marine Drive West
Bognor Regis
West Sussex
PO21 2QA

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP