DAISY II
INCUBATOR

Operator's Manual

Rev C 1/24/17

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ANKOM TECHNOLOGY

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Introduction

ANKOM Technology designs, manufactures, and markets instruments and support products used by analytical laboratories around the world in the environmental, agricultural, biomass, and food industries. ANKOM Technology can provide you with products for determining or monitoring detergent fibers, dietary fibers, fat, digestibility, microbial fermentation (anaerobic or aerobic) and more.

Committed to Total Customer Satisfaction, ANKOM designs every product based on a thorough assessment of customer needs.

Congratulations on your purchase of the ANKOM Daisy^{II} Incubator. We are confident that this product will effectively serve your needs.

By carefully following the operating instructions in this manual, you will minimize errors in results. Experience indicates that errors in results are usually associated with minor variations in carrying out the procedure. This manual will provide you with details that will help assure accuracy of your results.

> **NOTE:** Please review the entire contents of this manual before you begin operating this product.

Warranty

ANKOM Technology warrants the ANKOM Daisy^{II} Incubator against any defects in workmanship or material for one year after the original date of purchase. This warranty does not include damage to the instrument resulting from neglect or misuse. During the warranty period, should any failure result from defects in workmanship or materials, ANKOM Technology will, at its discretion, repair or replace the instrument free of charge.

Extended warranties are available upon request.

Filter Bags

ANKOM Technology filter bags (part #F57) are designed to support precision and accuracy in analysis. Use of other types of filtration media not tested and approved by ANKOM Technology may cause damage to electrical valves and other components and void your warranty. Filter bags can be purchased from ANKOM Technology or from your local authorized ANKOM distributor.

Operating Environment

Your ANKOM Daisy^{II} Incubator is designed to operate within the following environments:

- Ambient Temperature Range: 15−30°C (60-85°F)
- Humidity: 20–60% RH
- Power (domestic): 100 − 120V ~ 3A 60Hz
- Power (international): 220 − 240V ~ 3A 50Hz

Contact Information

At ANKOM Technology we are committed to your total satisfaction and therefore always available to help you get the most from your ANKOM products. We are also very interested in any comments or suggestions you may have to help us improve.

For any questions or suggestions regarding your instrument, please contact us at:

- Telephone: (315) 986-8090
- Fax: (315) 986-8091
- Email: service@ankom.com
- **www.ankom.com**

Instrument Description

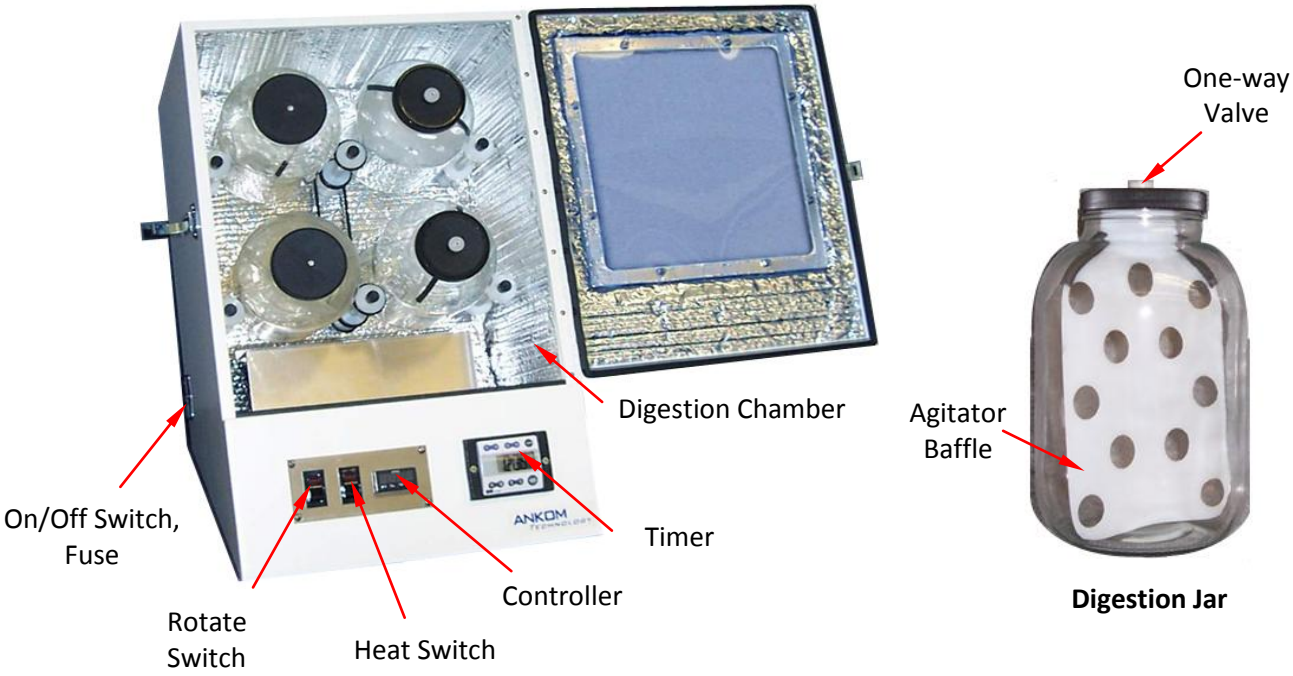
The DAISY^{II} Incubator was designed to efficiently and accurately analyze up to 100 samples individually enclosed in filter bags. You can perform either rate studies or total digestion studies in a batch operation. The DAISY^{II} instrument will free you from some of the labor requirements associated with the conventional methods. With the ANKOM system, you divide your assays between four (4) digestion jars versus a comparable conventional method, which requires 100 test tubes. Proper anaerobic conditions are easier to maintain, because the CO2 purging process is simplified. The DAISY^{II} Incubator can perform digestibility studies using enzymes or rumen inoculum. The sequential NDF assay required for In Vitro True Digestibility (IVTD) assays can easily be processed using the ANKOM$^{200/220}$ Fiber Analyzer because the filter bags are the same for both instruments. The DAISY^{II} Incubator maintains an incubation temperature of 39.5° C, while providing agitation.

If you own one of our earlier models of the DAISY^{II} Incubator you will note some slight changes in appearance. Although originally designed to provide the US research market with a low cost and efficient method for accomplishing IVTD studies, we found that the appeal for this product extended around the world. This required that we design a product that could support commercial laboratory needs. The product also needed to be able to withstand the impact of international shipments. We know that you will be pleased with these changes. Make sure that you read this manual carefully before you proceed. As a result of recent modifications and some inter-lab studies, we have made some modifications to the assay procedure. These changes provide for precise and accurate rate and digestion study results.

Please note that we also provide a full range of products to support fiber analysis and in situ studies. We offer chemicals and other ancillary products that will assist you in getting accurate results at a reasonable cost.

Below is a detailed view of the instrument.

- The **Rotate** switch controls the rotation of the digestion jars.
- The **Heat** switch allows the controller to heat the digestion jars, samples, and rumen inoculum.
- The **Controller** maintains the temperature inside the temperature at 39.5°C+/-5. Do not adjust without consulting ANKOM Technology.



Safety Precautions

Caution, Lift Hazard: Lift and move using two people only.

Caution, Rear Surface Hazardous Voltages: Do NOT operate the instrument with the back cover removed – hazardous voltages are present during operation. The power cord must be connected prior to rear panel removal. **Failure to observe this caution may result in electrical shock or electrocution.**

This system is designed to meet and/or exceed the applicable standards of CE, CSA, NRTL and OSHA.

IMPORTANT:

- All switches should be in the OFF position before plugging the power cord into the electrical outlet.
- An electrical fuse will disconnect the electrical power supply in case of malfunction.

Instrument Set-Up

Your instrument comes complete with a power cord and digestion jars. To set up your instrument, follow the steps below.

1. Set the instrument on a firm, level surface. Place the back of the instrument no closer than one inch from a wall.

   IMPORTANT: Do NOT place this instrument where it will be subject to excessive shock, vibration, dirt, moisture, oil, or other fluids.

2. Plug the power cord into the plug outlet and then into an electrical outlet.

Operation

Your Daisy^{II} Incubator is designed to provide incubation and agitation of samples at a constant 39.5°C+/-5. The controller is preset to 39.5°C. Consult ANKOM Technology if a different temperature setting is desired.

To Start the Cycle:

1. Turn the instrument's **On/Off Switch** on.
2. Add samples and solution to digestion jars as per procedure.
3. Turn the **Heat** and **Rotate** switches on. Visually confirm the jars are rotating and the heat lamps are on.

To End the Cycle:

1. Turn the **Heat** and **Rotate** switches off.
2. Empty the fluid from each jar and process the samples according to the specific procedure.

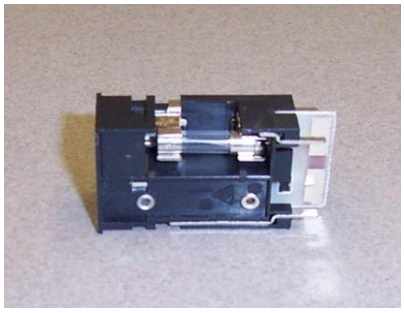
Periodic Maintenance

1. Check to make sure the **Heat** lamps are both operating.
2. To ensure jars don't slip on the drive belt, clean the outside of the jars with window cleaner.

Fuse Replacement:

Replace both fuses – 120V (3A) or 220V (3A).

Pry the fuse holder out of the On/Off switch



This is oriented for 220V operation

Troubleshooting & Replacement Parts

The ANKOM Technology web site has the most current troubleshooting and replacement parts information. Therefore, if you have any questions about the operation of your DAISY^{II} Incubator, or if you need replacement parts, please visit our web site at **www.ankom.com.**

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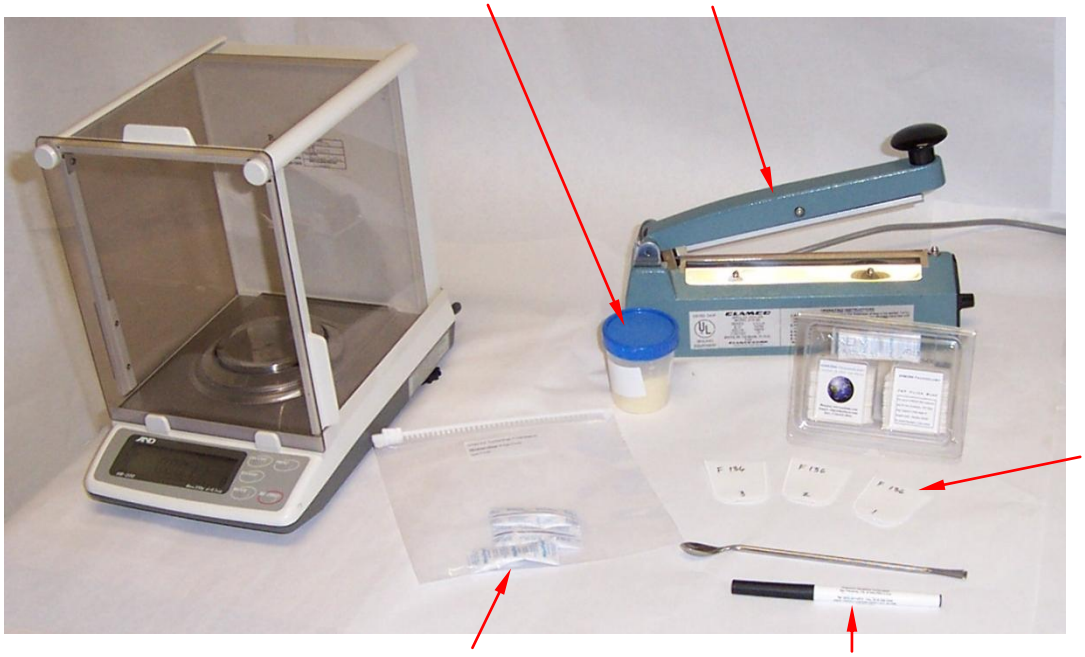
Appendix A – W-1 ANKOM Technology Fiber Weighing Procedure for In Vitro Determination

Electronic Balance:

We recommend a four place readout on the balance and suggest "Balance Talk™" or other LIMS software for data input and management.



1. Wash and dry filter bags as per procedure. Number all bags using a solvent resistant marker as shown in Figure A1.

Figure A1

2. Weigh and record filter bag weights. See Figure A2.

3. Tare the weight of the filter bag and bag holder.

Figure A2

4. Add 0.25g to 0.05g of sample to a filter bag using a spatula as shown in Figure A3. Be careful not to get sample particles on the top edge of the bag sealing area.

5. Weigh the sample and record its weight.

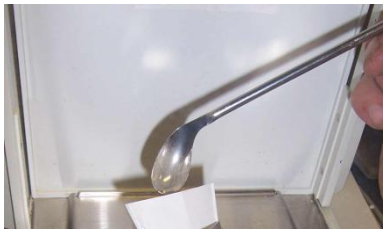


Figure A3

6. The heat sealer dial should be set between 4 and 5 as illustrated in Figure A4. The setting may vary from sealer to sealer.

Figure A4

7. Seal each filter bag no more than 4mm from its open end as demonstrated in Figure A5. Hold down the handle for 2-3 seconds after the red light turns off.

Figure A5

8. The seal can be seen as a solid melted stripe along the top edge. See Figure A6.

Figure A6

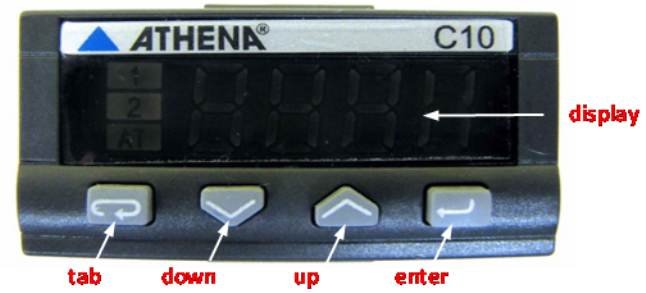
9. Perform the extraction as per procedure.

10. After digestion is complete, acetone-rinse and dry according to procedure. Remove the filter bag from the oven and immediately store in the *MoistureStop* Pouch, as shown in Figure A7.

Figure A7

11. Cool to room temperature and re-weigh each bag.

Appendix B – Controller Configuration



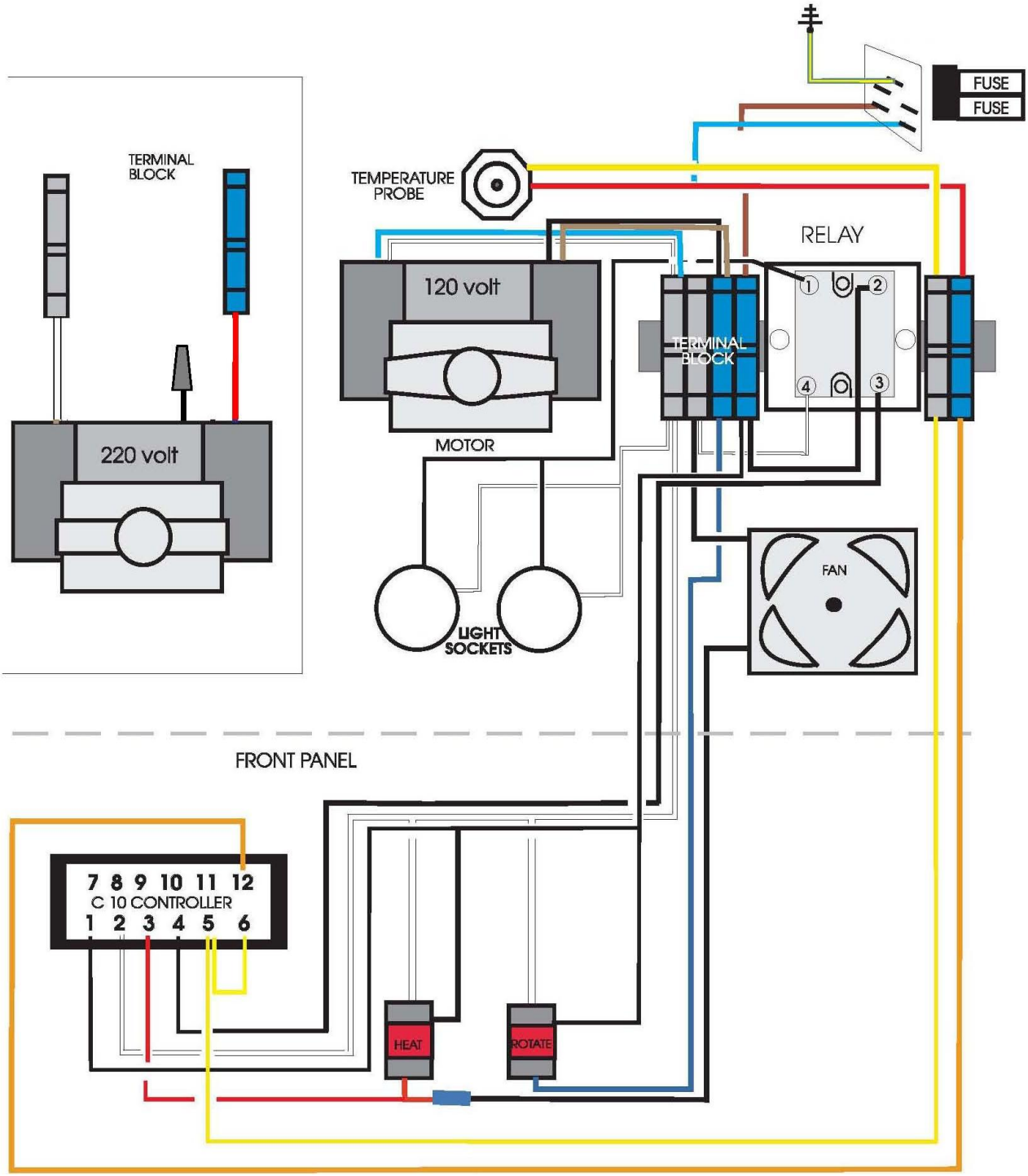
The Athena Controller (shown above) maintains the proper temperatures within the D200/D200I. To configure the controller, follow the procedure below. If you make a mistake at any point in the procedure, go back to step 2 and start over.

1. Power on the instrument. The current temperature will show on the display.
2. Press **tab** until you see PASS on the display.
3. Press ▼ ▲ until you see 33 on the display. Press ↵ You will see ConF on the display.
4. Press ▼ ▲ until you see 0000 on the display. Press ↵ You will see Unit on the display.
5. Press ▼ ▲ until you see °C on the display. Press ↵ twice to see CodE on the display.
6. Press **tab** . You will see the current temperature show on the display.
7. Press **tab** twice to see tunE on the display.
8. Press **enter** . You will see SL.u on the display.
9. Press **enter** . You will see SL.d on the display.
10. Press **enter** . You will see S.P.L on the display.
11. Press ▼ ▲ until you see 0.0 on the display. Press ↵ You will see S.P.H on the display.
12. Press ▼ ▲ until you see 45.0 on the display. Press ↵ You will see t.FiL on the display.
13. Press **tab** . You will see PASS on the display.
14. Press **tab** . You will see the current temperature show on the display.
15. Press ▼ ▲ until you see 39.5 on the display.

Let the controller sit for 30 seconds. The temperature is now set to 39.5 and the menu settings are complete.

Appendix C – Daisy Wiring Diagram

Inlet Power: 100 – 120V
220 – 240V



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Automation saves time and money!

ANKOM Technology is an international company with products that include…

	**TDF Dietary Fiber Analyzer** • Automates AOAC 991.43, 985.29, 2009.01, and 2011.25 (and associated AACC methods) • IDF/SDF and TDF values • Faster, Technician-free Filtering • Computer controlled operation • Reduced per assay costs
	**A2000 Fiber Analyzer** • Crude Fiber (AOCS Ba 6a-05), ADF, NDF • Automatically adds solutions and rinses • Batch process - up to 24 samples at one time
	**XT15 Fat Extractor** • Official Method AOCS Am 5-04 • Fully automatic • Solvent recovery at 97% or greater • Batch process - up to 15 samples at one time
	**RF Gas Production System** • High sensitivity pressure measurement • Anaerobic activity analyses (rumen, yeast, beer/wine fermentation, biomass, biodegradability, etc.) • Soil respiration • Wireless Computer control and data storage
	**Chemicals** • A wide variety of chemicals used for many different lab operations • Pre-mixed solutions available

Please visit our web site at www.ankom.com for more information.

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