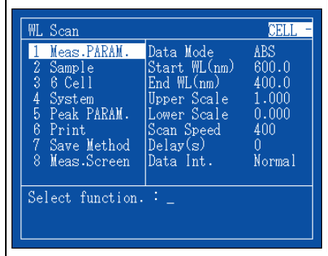
Wavelength Scan Measurement

Procedure 1 Method Setting

Measurement method needs to be set.



[For selecting an item to be set]

Select an item to be set (by pressing any key of 1 to 8 or ▲▼ key) and then press the ENTER key.

[For returning to item selection screen]

Press RETURN key.

1. **Meas.PARAM**. (setting of data mode, wavelength, etc.)
   - [Data Mode] (Setting of ordinate unit of spectrum)
   - [Scan] (Setting of wavelength shift speed in measurement. Data interval is wider at higher speed and narrower at lower speed.)
   - [Data Int.] (Setting of data acquisition interval)
2. **Sample** (setting of sample name)
3. **6 Cell** (setting of 6-cell turret motion)
4. **System** (setting of response)
5. **Peak PARAM**. (setting of peak detection threshold and sensitivity)
6. **Print** (selection of items to be printed)
7. **Save Method** (saving of measurement method)

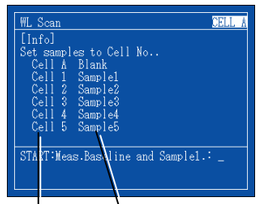
Press 8 key and then ENTER key or MEAS. SCREEN key.

STD measurement screen or sample measurement screen will appear.

Procedure 2 Sample Measurement

When 6 Cell Mode is set in Auto

According to the guidance, set each sample in the cell holder.



Cell position

No. of sample to be set

Press START key to correct the baseline correction and measure sample 1.

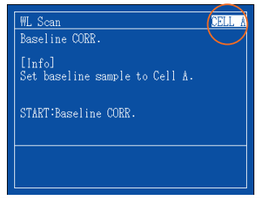
Press PRINT key.: Data will printed out.

Press 3 key and ENTER key.: Data will be saved.

According to the guidance, measure the next sample.

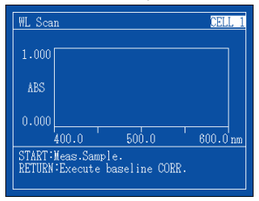
When 6 Cell Mode is set in Manual

Set a sample for baseline in CELL A. Cell position



Press START key to execute baseline correction.

After completion of baseline correction, set a sample in CELL 1*.



Press START key to measure the sample.

* If cell position is shifted by key operation, a sample should be set at the cell position indicated at the top right of the display screen.

Procedure 3 After Measurement

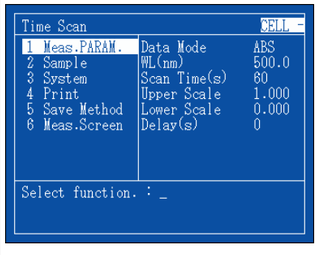
Press PRINT key. : Data will be printed out.

Press 3 key and ENTER key. : Data will be saved.

Time Scan Measurement

Procedure 1 Method Setting

Measurement method needs to be set.



[For selecting an item to be set]

Select an item to be set (by pressing any key of 1 to 6 or ▲▼ key) and then press the ENTER key.

[For returning to item selection screen]

Press RETURN key.

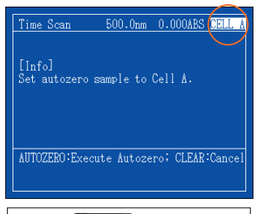
1. **Meas.PARAM**. (setting of data mode, wavelength, etc.)
2. **Sample** (setting of sample name)
3. **System** (setting of response)
4. **Print** (selection of items to be printed)
5. **Save Method** (saving of measurement method)

Press 6 key and then ENTER key or MEAS. SCREEN key.

Sample measurement screen will appear.

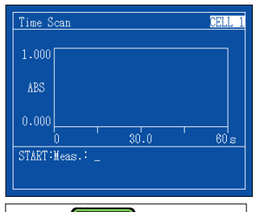
Procedure 2 Sample Measurement

Set a sample for auto zero in CELL A. Cell position



Press AUTO ZERO key to execute auto zero.

After completion of auto zero, set an unknown sample in CELL 1*.



Press START key to execute sample measurement.

* If cell position is shifted by key operation, a sample should be set at the cell position indicated at the top right of the display screen.

Procedure 3 After Measurement

Press PRINT key. : Data will be printed out.

Press 3 key and ENTER key. : Data will be saved.

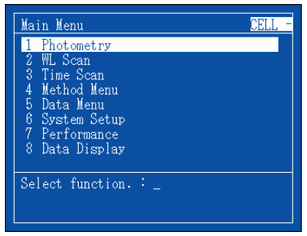
Part No. 3J2-9051 HT-S (GM-LT)

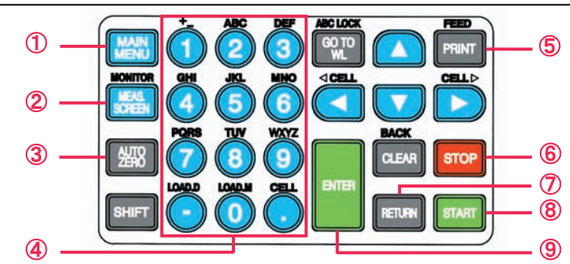
Model U-5100 Ratio Beam Spectrophotometer Operation Card

- This operation card explains the typical operation flow of Model U-5100 as an example. For details of operation, refer to the instruction manual of Model U-5100 ratio beam spectrophotometer.
- This operation card does not contain the precautions for safety which are given in the U-5100 instruction manual. The precautions for safety are collectively given in “SAFETY SUMMARY” in the instruction manual. Be sure to read “SAFETY SUMMARY.”

Turn on instrument power supply

Display of Main Menu





①	MAIN MENU key Calls the Main Menu screen.	④	Numeric and sign keys Used for entering alphanumeric characters and signs.	⑦	RETURN key Returns to the previous screen.
②	MEAS. SCREEN key Determines measurement parameters and calls the Meas. screen.	⑤	PRINT key Prints a report.	⑧	START key Starts measurement or calls the next Meas. screen.
③	AUTOZERO key Corrects photometric value to 0 ABS or 100%T.	⑥	STOP key Terminates measurement.	⑨	ENTER key Determines a set parameter.

Main Keys on Operation Panel

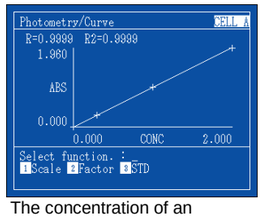
1. Photometry

Press 1 key (Photometry) and then ENTER key.

Concentration measurement p.2
DNA measurement (ratio calculation) p.3
Absorbance/transmittance measurement p.3
Multi-wavelength measurement p.3

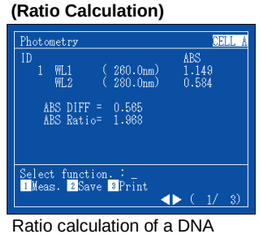
Examples of Measurement Results

Concentration Measurement



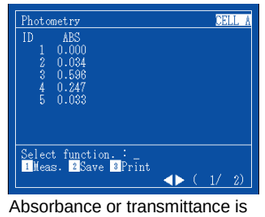
The concentration of an unknown sample can be measured through standard sample measurement or factor input.

DNA Measurement (Ratio Calculation)



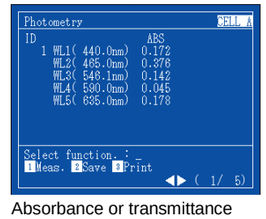
Ratio calculation of a DNA sample can be carried out.

Absorbance/Transmittance Measurement



Absorbance or transmittance is measurable.

Multi-wavelength Measurement



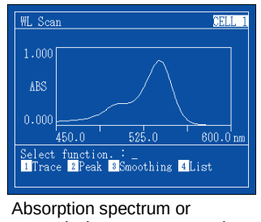
Absorbance or transmittance can be measured at multiple wavelengths.

2. WL Scan

Press 2 key (WL Scan) and then ENTER key.

Wavelength scan p.4

Example of Measurement Result



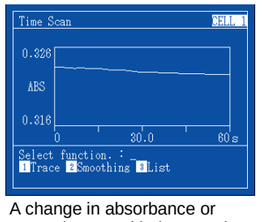
Absorption spectrum or transmission spectrum can be determined.

3. Time Scan

Press 3 key (Time Scan) and then ENTER key.

Time scan p.4

Example of Measurement Result



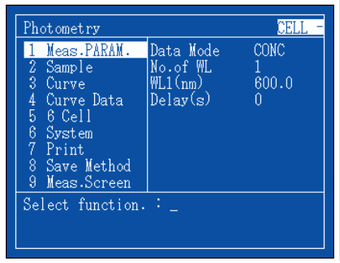
A change in absorbance or transmittance with time can be measured.

4. **Method Menu** : Loads/deletes the saved measurement method.
5. **Data Menu** : Loads/deletes the saved data.
6. **System Setup** : Executes system setup, wavelength calibration, etc.
7. **Performance** : Checks instrument performance.
8. **Data Display** : Displays enlarged photometric values on the display.

Concentration Measurement

Procedure 1 Method Setting

Measurement method needs to be set.



[For selecting an item to be set]
Select an item to be set (by pressing any key of 1 to 9 or ▲▼ key) and then press the ENTER key.

[For returning to item selection screen]
Press RETURN key.

1. Meas.PARAM. (setting of data mode, wavelength, etc.)
[Data Mode] Select CONC (concentration measurement).
[WL 1 (nm)] Select measuring wavelength.

2. Sample (setting of sample name, sample ID, etc.)

3. Curve (setting for calibration curve)
[Curve Type] Selection of concentration calculation method
1st Order : For generating a calibration curve with standard sample and quantitating an unknown sample.
Factor : For quantitation using the input factor.
[Thru Zero] Selection on whether to pass the calibration curve through the zero point or not
ON : Passes the curve through the zero point.
OFF : Does not pass the curve through the zero point.

4. Curve Data (setting of STD concentration or factor)

When 1st Order is selected for [Curve Type]:
Enter the concentration of standard sample.

When Factor is selected for [Curve Type]:
[A0] : Y intercept value of calibration curve
[A1] : Slope value of calibration curve

5. 6 Cell (setting of 6-cell turret motion)
When [6 Cell Mode] is set in Auto:
[STD Autozero]
STD1 : To be set for using STD1 sample for auto zero operation.
Blank : To be set when an exclusive sample is used for auto zero, i.e., it is not used as a standard.

6. System (selection of how to express calibration curve formula)
7. Print (selection of items to be printed)
8. Save Method (saving of measurement method)

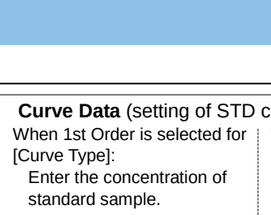
Press 9 key and then ENTER key or MEAS. SCREEN key.
STD measurement screen or sample measurement screen will appear.

When 1st Order is selected for Curve Type:

Procedure 2 STD Measurement

When 6 Cell Mode is set in Auto

According to the guidance, set each standard sample in the cell holder.



Cell position
STD concentration
No. of STD to be set

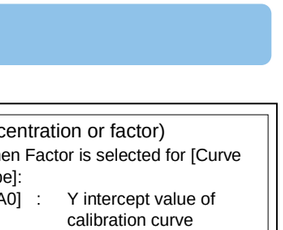
Press START key to measure the standard sample.

When the number of STDs is 6 or more:
Press START key.
According to the guidance, measure up to the last STD.

When the number of STDs is 5 or less:
STD measurement will end.

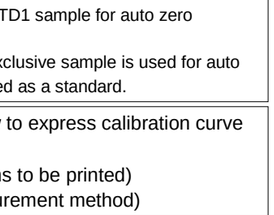
When 6 Cell Mode is set in Manual

Set a sample for auto zero operation in CELL A. Cell position



Press AUTO ZERO key for execution of auto zero.

After completion of auto zero, set a standard sample in CELL 1*.



Press START key to measure the standard sample.

Set and measure the next standard sample. Repeat the above procedure for up to the last standard sample.

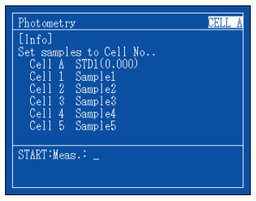
Press 1 key and then ENTER key for advance to sample measurement.

When Factor is selected for Curve Type:

Procedure 3 Sample Measurement

When 6 Cell Mode is set in Auto

According to the guidance, set each unknown sample in the cell holder.

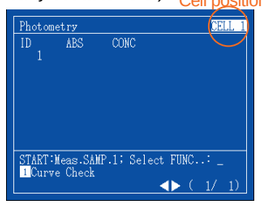


Press START key to measure the sample.

After measurement, press START key and measure the next sample according to the guidance.
Measure up to the last sample.

When 6 Cell Mode is set in Manual

Set a sample in CELL 1*. (When Factor is selected, carry out auto zero.) Cell position



Press START key to measure the sample.

Set and measure the next sample. Measure up to the last sample.

Press STOP key to terminate measurement.

* If cell position is shifted by key operation, a sample should be set at the cell position indicated at the top right of the display screen.

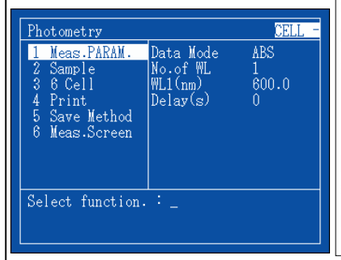
Procedure 4 After Measurement

Press PRINT key. : Data will be printed out.
Press 3 key and ENTER key. : Data will be saved.

Absorbance/Transmittance Measurement, Multi-wavelength Measurement and DNA Measurement (Ratio Calculation)

Procedure 1 Method Setting

Measurement method needs to be set.



[For selecting an item to be set]
Select an item to be set (by pressing any key of 1 to 6 or ▲▼ key) and then press the ENTER key.

[For returning to item selection screen]
Press RETURN key.

1. Meas.PARAM. (setting of data mode, wavelength, etc.)
[Data Mode]
ABS : To be set for absorbance measurement.
%T : To be set for transmittance measurement.
DNA Measurement : To be set for DNA measurement (ratio calculation).

2. Sample (setting of sample name, sample ID, etc.)

3. 6 Cell (setting of 6-cell turret motion)
When [6 Cell Mode] is set in Auto:
[SAMP. Autozero]
ON : To be set for automatic execution of auto zero operation (using CELL A).
OFF : To be set for avoiding automatic execution of auto zero.

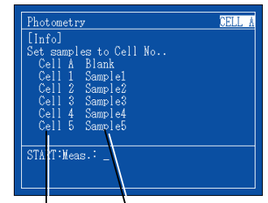
4. Print (selection of items to be printed)
5. Save Method (saving of measurement method)

Press 6 key and then ENTER key or MEAS. SCREEN key.
Sample measurement screen will appear.

Procedure 2 Sample Measurement

When 6 Cell Mode is set in Auto

According to the guidance, set a blank sample and each unknown sample in the cell holder.



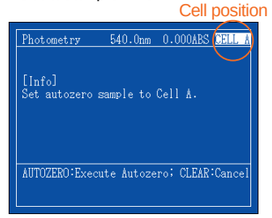
Cell position
No. of sample to be set

Press START key to measure the sample.

After measurement, press START key and measure the next sample according to the guidance.
Measure up to the last sample.

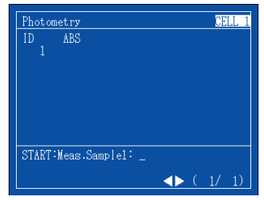
When 6 Cell Mode is set in Manual

Set a sample in CELL A. Cell position



Press AUTO ZERO key to execute auto zero.

Set the sample in CELL 1* after completion of auto zero.



Press START key to measure the sample.

Set and measure the next sample. Measure up to the last sample.

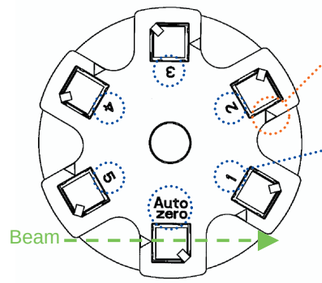
Press STOP key to terminate measurement.

* If cell position is shifted by key operation, a sample should be set at the cell position indicated at the top right of the display screen.

Procedure 3 After Measurement

Press PRINT key. : Data will be printed out.
Press 2 key and ENTER key. : Data will be saved.

How to Place Cells (For details, refer to “cell placing method” in 2.4.4 of Model U-5100 instruction manual.)

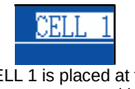


Top view of 6-cell turret

Indication of beam entrance side
The beam for measurement enters each cell from the side marked with a triangle (△).
Therefore, the beam transmission path of the cell must be aligned with the triangle when placing the cell.

Name of cell position
The “Autozero” marking stands for the cell position where auto zero will be carried out. If you attempt to use this position for measurement, “CELL A” is indicated as the present cell position at the top right of the display screen.
Numeric markings 1 to 5 denote cell positions for sample measurement. One of CELL 1 to CELL 5 will be indicated as the present cell position at the top right of the display screen.

CELL A (Autozero) is placed at the measurement position.



CELL 1 is placed at the measurement position.

Present Cell Position Indicated at Top Right of Display