

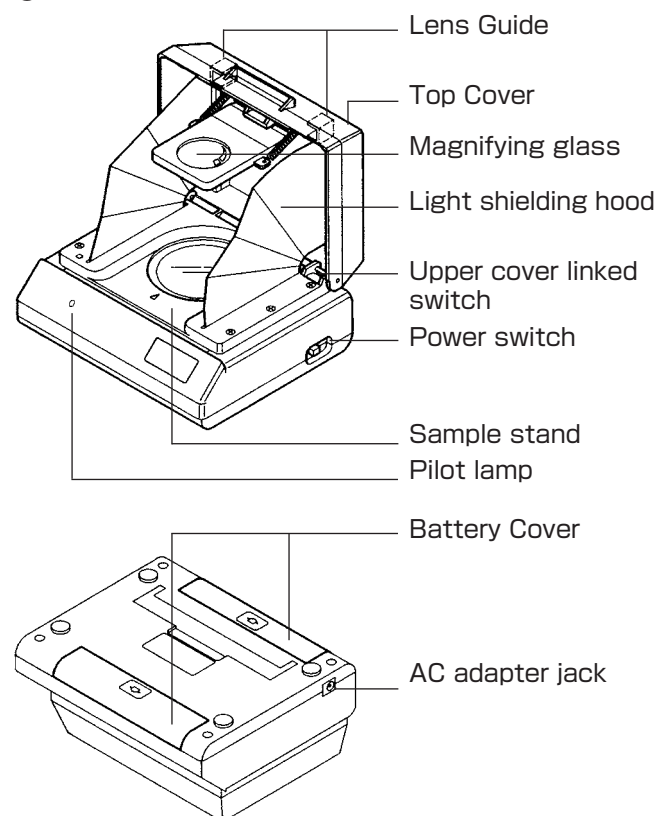
The Kett Grainscope TX-200 allows you to view grain by illuminating it from behind and magnifying the image. A blue reflective plate is placed behind the sample to improve ease of discrimination, so the user can clearly determine the shape and color of rice grains.

### Features

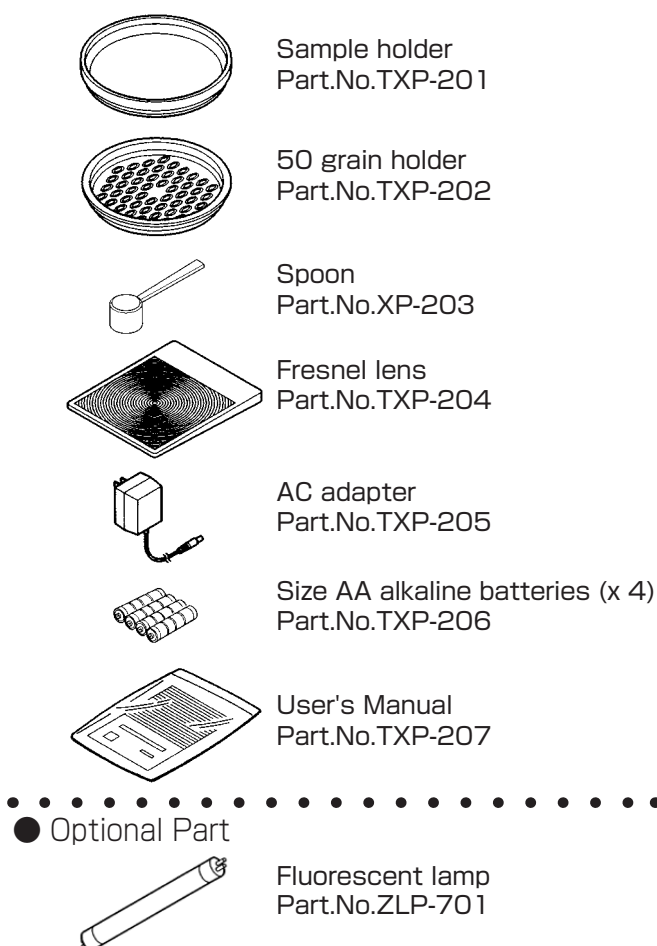
- Both alkaline batteries and standard household electrical current (100/220 V) can be used as the power supply, so the unit can be used anywhere.
- A magnifying glass is built in, so sample can be viewed at higher magnification. In addition, a fresnel lens is supplied as an accessory so that samples can be viewed with both eyes when magnified.
- The angle can be checked while rotating the sample holder.
- The upper cover has a linked switch that turns the unit on and off as the cover is opened and closed. This prevents unintentional discharge of batteries due to failure to turn off the power.

## 1 Part Names

### Main Unit



### Accessories



### Optional Part

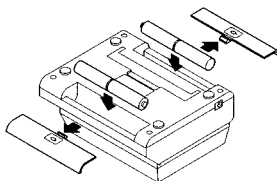
## 2 Preparations

### 1. Power supply

The TX-200 can be used with either batteries or household electrical current (100/220V 50/60Hz).

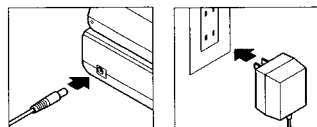
#### Using Batteries

- Use 4 size AA alkaline batteries.
- Slide open the battery cover on the back of the unit and correctly set the 4 AA batteries into the unit.
- To prevent battery leakage, remove the batteries from the unit if it will not be used for an extended period of time. Also, do not mix batteries of different types or new batteries with old batteries. Always replace the batteries with all new batteries.



#### Using household current

- Connect the plug of the supplied AC adapter to the jack on the rear of the unit and connect the AC adapter to an electrical outlet (100/220V 50/60Hz).
- When not in use, remove the adapter from the outlet to prevent heat build-up.
- When ordering, please specify voltage for household current.

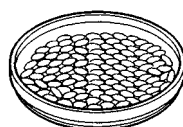


### 2. Obtaining samples

Two methods are available for obtaining samples of white or brown rice in order to make visual inspections of quality.

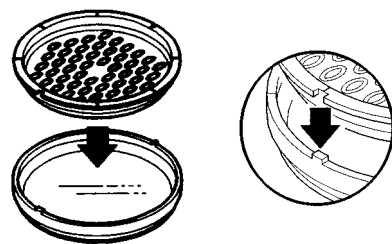
#### Using with the sample holder only

- When filled completely, the supplied spoon contains approximately 200 grains of rice. This sample is placed in a row on the sample holder. The shape of grains differs depending on the type of the sample and other factors and in some cases, grains may overlap. Reduce or increase the number of grains as appropriate to line them up in a row.



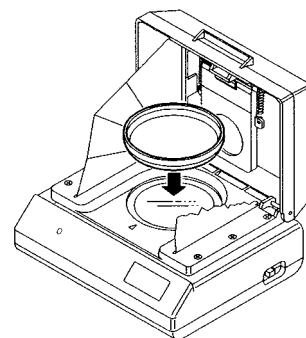
#### Using the 50 grain holder

- Put 50 grain holder on the sample holder for inspection for 50 grains.
- Scoop up a quantity of sample of about 1/3 to 1/4 the capacity of the spoon and then place on the 50 grain holder so that 1 grain rests in each hole. Be care not to allow more than one grain to rest in the holes.

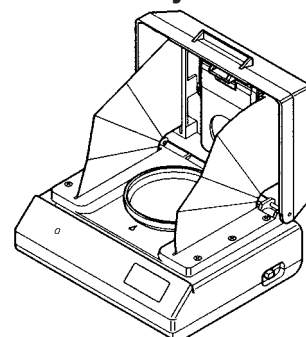


## 3 Observing samples

- Completely open the top cover until it rests on the stoppers.  
(Please note that the fluorescent lamp will not light if the upper cover is not opened completely.)
- Turn on the power switch and place a sample holder containing the sample on the sample stand.
- Rice grain cracks and damage have directionality, so the quality of the external appearance can be easily seen when the sample holder is turned with the user's fingers.

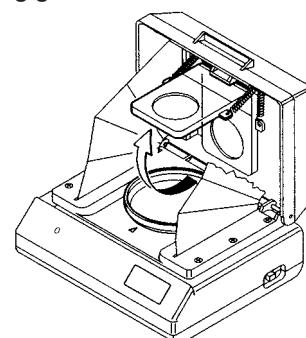


### Viewing with the naked eye



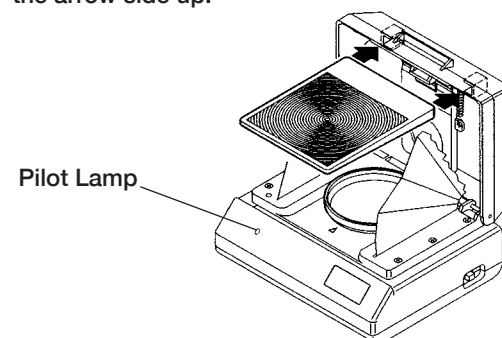
### Viewing with the magnifying glass

- Pull the magnifying glass stored in the cover up to use.



### Observing with the fresnel lens

- Stow the magnifying glass in the top cover.
- Insert the supplied fresnel lens into the lens guide with the arrow side up.



- \* When done using the unit, please check to confirm that the upper cover is closed completely and the pilot lamp is out.

## 4 Notes and cautions

To preserve the characteristics and performance of the TX 200, do not use or store the unit in the following types of environments:

- In a closed vehicle under hot weather or a location that becomes hot due to heating equipment. Extremely cold locations.
- Very dusty places
- Places under high humidity, such as bathrooms.
- Always close the top cover and turn off the power switch when not in use. The lens can intensify sun rays and ignite fires. This also serves to prevent dust from collecting on the sample stand and lens.
- When moving or transporting the unit, please be sure that the fluorescent lamp is turned off using the power switch.

### Safety Tips



Caution



Fire



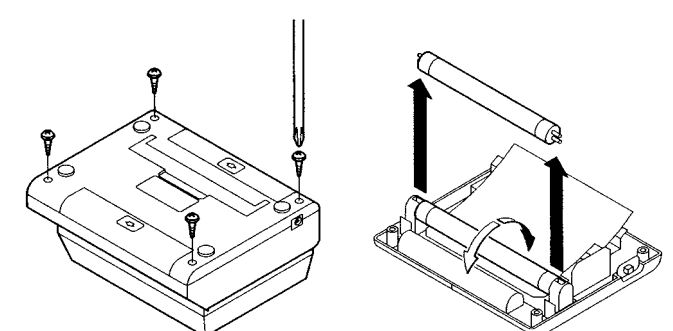
Electric Shock

- Do not place flammable materials under the magnifying glass or fresnel lens. Rays of sunlight can be focused and result in fires.
- Only connect the AC adapter to appropriate power supplies. Connecting it to excessively high voltages can result in overheating and fire.
- Remove the batteries and disconnect the AC adapter when replacing the fluorescent lamp. High voltage parts are located near the fluorescent lamp and there is danger of electric shock.
- Never disassemble or modify the unit except to replace the fluorescent lamp. Doing so can lead to damage to the unit, electrical shock or fire. Please contact our authorized service representatives if you suspect a malfunction.

## 5 Replacing the fluorescent lamp

Follow the following procedure to replace the fluorescent lamp when necessary:

- Turn off the power switch and remove the batteries or disconnect the AC adapter. There is a danger of electrical shock if the power is not disconnected.
- Remove the 4 screws in the corners on the bottom of the unit and then remove the cover to expose the fluorescent lamp. Be careful not to get fingerprints on the blue reflective plate when doing so.
- Grip the two ends of the lamp and rotate it approximately 90° so that it comes loose, then remove it.
- Insert a new fluorescent lamp into the socket and turn approximately 90° so that it is fixed in place.
- Replace the bottom cover and reinstall the screws. Avoid over tightening the screws as doing so can damage the screw mounds.
- Reinstall the batteries or reconnect the AC adapter, turn on the power and check that the fluorescent lamp lights.



## 6 Troubleshooting

If the fluorescent lamp does not come on, is dim or blinks excessively, check the following points.

Symptom	Check
The lamp does not light	<ul style="list-style-type: none"> <li>● Are the batteries installed correctly?</li> <li>● Have the batteries been exhausted?</li> <li>● Is the power switch in the ON position?</li> <li>● Is the AC adapter connected correctly?</li> <li>● Is the AC adapter for correct power supply?</li> </ul>
The lamp lights slowly or is dim	<ul style="list-style-type: none"> <li>● Is the lamp burned out? *(1)</li> <li>● Is the upper cover fully open to the stopper position?</li> </ul>
The lamp blinks excessively*(2)	<ul style="list-style-type: none"> <li>● Have the batteries been exhausted?</li> <li>● Is the AC adapter connected correctly?</li> <li>● Is the lamp burning out? *(1)</li> </ul>

\*(1) The following phenomena are observed as fluorescent lamps age:

- Lamp becomes difficult to light
  - The ends of the lamp become blackened
  - The ends glow red but the lamp does not light
- To check the state of the lamp, remove the sample dish, turn on the lamp, look at the lamp from the base of the sample stand and observe the state of the two ends of the lamp reflected in the blue reflection plate.

\*(2) There is no problem if the symptom disappears on its own after a period of time. There is also no problem if the problem disappears when the power switch is turned off and then back on.

## 7 Specifications

Appropriate sample types:	White and brown rice
Power supply:	4 size AA alkaline batteries AC power supply with AC adapter Input 100/220V, 50/60Hz Output 6V DC, 0.5A
Continuous operation time with batteries:	Approximately 5 hours Differs somewhat depending on battery storage and temperature conditions
Light source:	4W daylight fluorescent lamp (ZLP-701)
Operating temperature:	10 ~ 40°C
Storage temperature:	0 ~ 40°C
Dimensions:	162(W) x 134(D) x 80(H) mm
Mass:	470g
Accessories:	Sample holder, 50 grain holder, spoon, fresnel lens, AC adapter, 4 size AA alkaline batteries, User's manual
Parts sold separately:	Fluorescent lamp (ZLP-701)

\* Specifications or appearance subject to change without notice.

## After-Service

- Please contact the kett retailer or sales office indicated below for service or information.