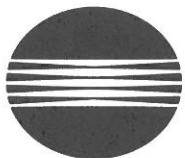


COLOR READER

CR-11

OPERATION MANUAL



KONICA MINOLTA

The Color Reader CR-11 is an extremely compact, extremely easy-to-use tristimulus colorimeter specifically designed for measuring color in Munsell notation. After switching on the Color Reader and performing white calibration by placing the tip of the Color Reader against the included white tile and pressing the measuring button, measurements can be taken by simply positioning the Color Reader on the specimen and pressing the measuring button. The Color Reader can be easily operated with one hand and is battery powered for complete portability. Memory is provided for up to 50 measurements, and data can be easily sent to a separate printer for printing out.

Please read and study this manual before using the Color Reader for the first time and keep this manual handy for future reference.

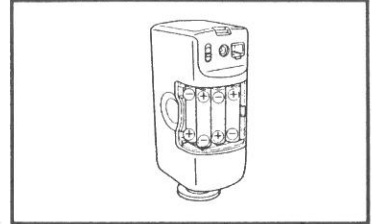
TAKING MEASUREMENTS IMMEDIATELY

To measure the color of a specimen, follow the steps below.

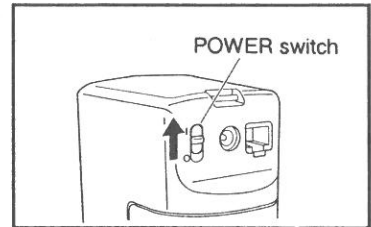
- For more information, refer to the corresponding section of this manual.

1 Install four AA-size batteries.

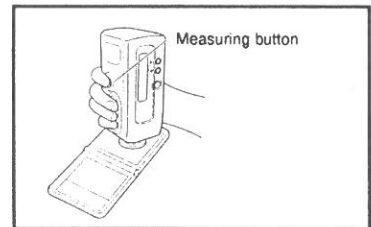
- Check that the polarities are as shown in the battery chamber.



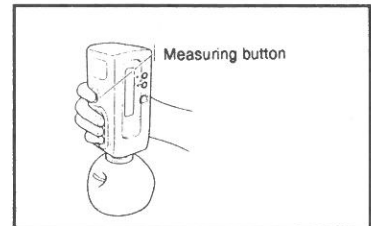
2 Switch on the instrument. The display will automatically change to the calibration display.



3 Place the tip of the Color Reader flat against the white calibration plate and press the measuring button to perform white calibration.



4 Place the tip of the Color Reader flat against the specimen to be measured and press the measuring button. The specimen will be measured and the measurement results in Munsell notation will be shown in the display.



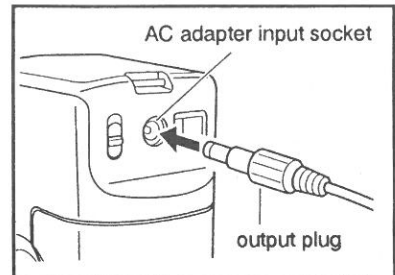
FUNCTIONS OF CONTROLS

Measuring button	Takes measurement.
CAL.	<ul style="list-style-type: none">• Changes between calibration display and measurement display.• When pressed together with ▲, starts printout of all measurement data in memory.
▲	<ul style="list-style-type: none">• Scrolls up (toward higher specimen numbers) through stored measurement data.• When pressed together with ▼, deletes all measurement data from memory.• When pressed together with CAL., starts printout of all measurement data in memory.
▼	<ul style="list-style-type: none">• Scrolls down (toward lower specimen numbers) through stored measurement data.• When pressed together with ▲, deletes all measurement data from memory.
LCD	Displays measurement results, etc.
POWER switch	Switches power on (I) and off (O).
Battery chamber cover	Covers battery chamber which holds four AA-size batteries.
AC adapter input socket	Used for connecting AC adapter to supply power from an AC socket. Use only AC Adapter AC-A308.
Printer output socket	Used for connecting a printer to print out data.

Using AC Adapter

- Use only AC Adapter AC-A308 (available as an optional accessory). Use of other AC adapters may damage the Color Reader.
- When connecting or disconnecting the AC adapter, be sure that the POWER switch of the Color Reader is set to O (off).

- 1 Check that the POWER switch of the Color Reader is set to O (off) and insert the output plug of the AC adapter into the AC adapter input socket of the Color Reader.



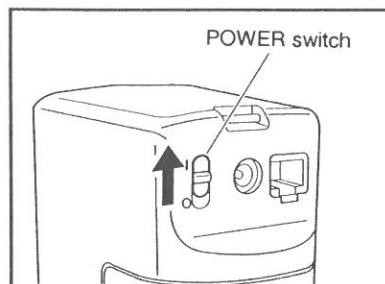
- 2 Insert the input plug of the AC adapter into an AC wall outlet.

WHITE CALIBRATION

After the POWER switch is set to | (on), white calibration must be performed before measurements can be taken. White calibration can be performed only when the calibration display is shown; this display appears automatically after the POWER switch is set to | (on) and can also be reached from the measurement display by pressing **CAL**.

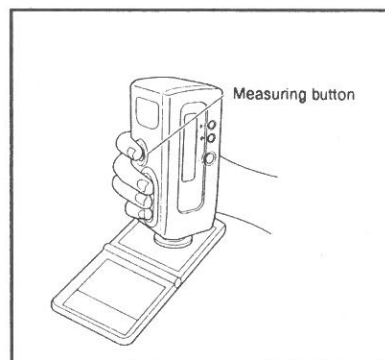
- Pressing **CAL**, when the calibration display is shown will cause the display to return to the measurement display.
- 1 Set POWER switch to | (on). The calibration display will appear.

Set Cal. Plate
--> Measure



- 2 Place the tip of the Color Reader flat against the white calibration plate.

- Use only the white calibration plate having the same serial number as the Color Reader. Use of a different white calibration plate will result in inaccurate measurements and may also result in error messages.



- 3 Press the measuring button. White calibration will be performed and the display will change to the measurement display (showing data if data are stored in memory).

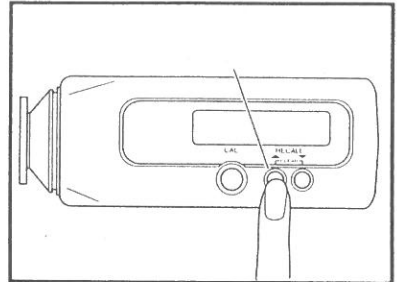
0 1

RECALLING DATA IN MEMORY

Measurement data stored in memory can be recalled to the display by using ▲ and ▼

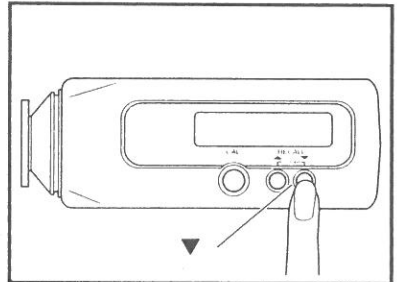
- Pressing ▲ scrolls through the data in memory toward higher specimen numbers.

3 5	2.5 YR	8 / 2
3 6	7.5 YR	6 / 2



- Pressing ▼ scrolls through the data in memory toward lower specimen numbers.

3 3	2.5 YR	8 / 2
3 4	7.5 YR	6 / 2



PRINTING MEASUREMENT DATA

By connecting a printer to the Color Reader, measurement data can be printed out at the time of measurement or all data in memory can be printed out.

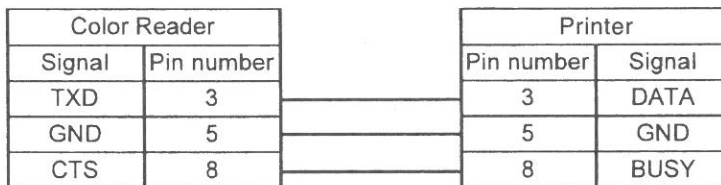
Suitable Printers

Printers which have the following specifications can be used with the Color Reader:

Number of printed columns:	At least 27
Data input:	RS-232C standard
Data control:	BUSY
Baud rate:	9600
Character length:	7 bits
Parity:	Even
Number of stop bits:	2 bits
Basic operating codes:	Carriage return CR (0D hexadecimal)

Connections

When connecting a printer, the connections between the Color Reader and the printer should be as follows:



- The connections of Printer Cable CR-A75 (available as an optional accessory) correspond to the above diagram.
- When connecting or disconnecting the Color Reader and the printer, be sure that both units are switched off.
- Always switch on the Color Reader before switching on the printer.

ERROR MESSAGES

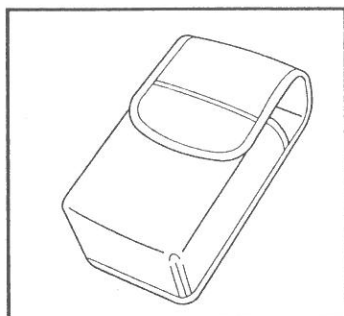
- If any of the following messages continue to be displayed after the suggested corrective action has been taken, contact the nearest authorized service facility.

Error message	Cause	Corrective action
Measure Again	Measurement was not taken correctly (Color Reader was moved during measurement, ambient light entered measurement aperture, etc.)	Take measurement again, being sure tip of Color Reader is flat against the specimen and that the Color Reader is not moved until the beep indicating completion of measurement has sounded.
Sample Too Dark	Reflectance of specimen is low.	Specimens with low reflectance cannot be measured.
Change Battery	Battery power is almost exhausted.	Replace batteries or use optional AC adapter.
Illumination Error	Lamp filament is broken or measurement circuit is malfunctioning.	Contact the nearest Konica Minolta authorized service facility.
Cal. Again	White calibration was performed using something other than the white calibration plate.	Use only the white calibration plate included with the Color Reader.

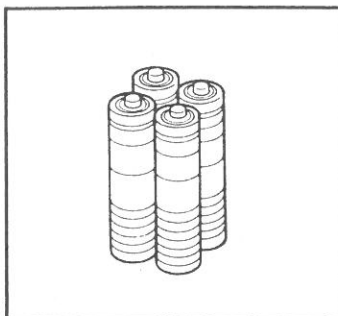
ACCESSORIES

Standard Accessories

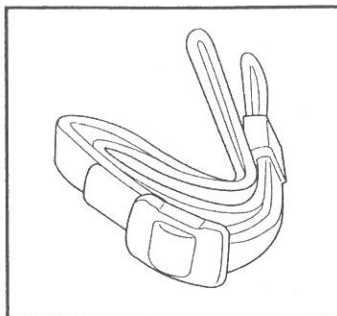
Soft Case CR-A68



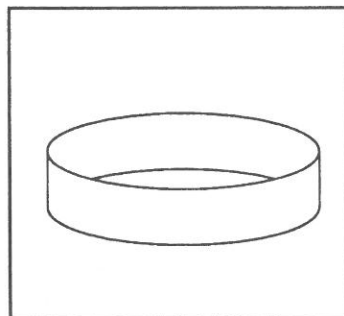
AA-size batteries (4)



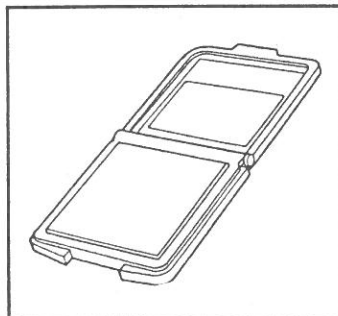
Wrist Strap CR-A73



Protective Cap CR-A72

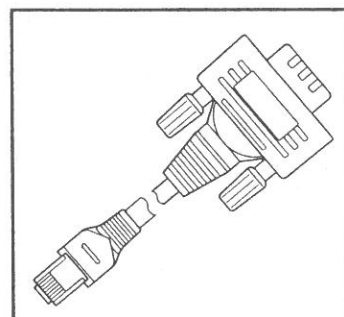


White Calibration Plate CR-A74

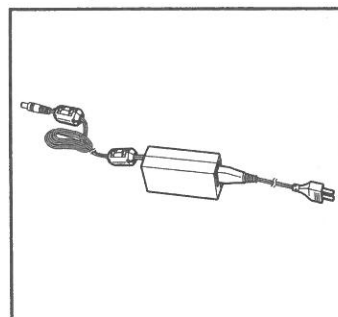


Optional Accessories

Printer Cable CR-A75



AC Adapter AC-A308



MEMO





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