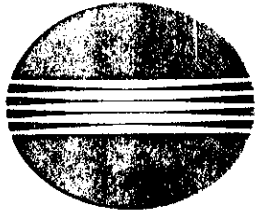




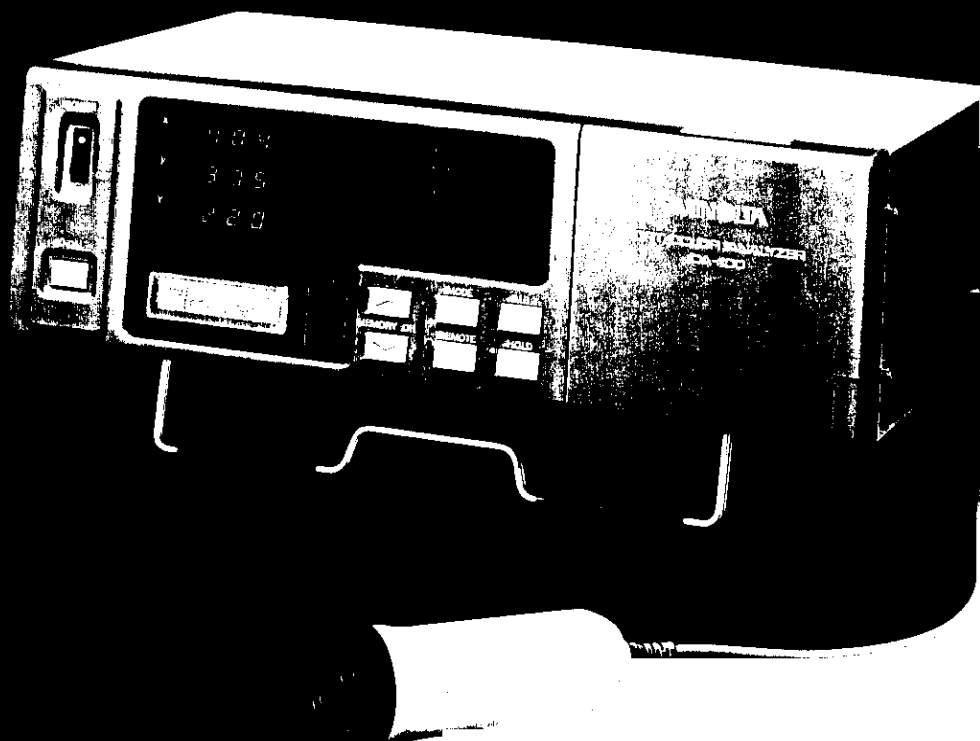
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MINOLTA

CRT COLOR ANALYZER CA-100



FOR AUTOMATION OF CRT PRODUCTION LINES

An easy-to-use instrument for white-balance adjustment on CRT production lines, with color measurement and analyzer* functions plus data-communication capabilities

The Minolta CRT Color Analyzer CA-100 was designed to upgrade the white-balance process on production lines for color TV sets and computer color monitors in the CRT industry. The multi-function CA-100 reduces the time required for white-balance adjustment and inspection, and provides numerical values for white-balance control. It is even equipped with data-communication capabilities, allowing it to become part of a computerized quality-control system or even a fully automated production line. Continuing advances in consumer televisions, such as higher reliability, higher image quality, larger screens, and more features, plus the increased use of high-fidelity computer color monitors in image-control applications, make the color-reproduction characteristics of CRTs increasingly important. To ensure accurate color reproduction, white-balance adjustment must be performed utilizing a high-accuracy, high-reliability instrument: The Minolta CRT Color Analyzer CA-100. With a variety of internal features plus a wide range of optional accessories to provide additional functions, the CA-100 can be used to speed up white-balance adjustment and inspection of many different kinds of CRTs. In addition, data communication and measurement control can be performed via an RS-232C or GP-IB* system, making it possible to use the CA-100 on a fully automated production line.

* Available with optional accessories

FEATURES

HIGH MEASUREMENT RATE

Any of four different synchronization modes can be selected to match the vertical scanning frequencies of different CRT systems.

Synchronization mode	Measurement rate*	Purpose
NTSC	10 times/s	For measurements of NTSC-system televisions (vertical scanning rate: 60Hz)
PAL	8 times/s	For measurements of PAL- or SECAM-system televisions (vertical scanning rate: 50Hz)
EXT	7 times/s (for 60Hz synchronization signal)	For measurements utilizing an external synchronization (vertical scanning rate: 40 to 90Hz)
UNIV	5 times/s	For measurements of CRTs for which vertical scanning rate is uncertain and from which synchronization signal cannot be obtained

* Based on Minolta Standard Test Method

OTHER FEATURES

- Wide luminance measurement range of 0.20 to 999cd/m²; (0.06 to 292 fL) allows measurement of virtually any CRT. Luminance units of cd/m² or fL can be changed by the user.
- Different memory channels (11 standard; expandable to 100 with optional card) can be used to store calibration values or standard colors for different CRT types. Each channel can be labeled with a 10-character ID name for easy identification.
- Measurements can be displayed as xyY (colorimetric coordinates, luminance) or T ΔuvY (correlated color temperature, color difference from blackbody locus, luminance) values. Measured values are displayed both digitally and on LED analog scales.
- Range of LED analog display scales can be set by the user between 0.1 and 99%.
- A standard RS-232C interface is built into the CA-100 for outputting data to a separate computer or controlling the CA-100 from the computer.

WIDE RANGE OF OPTIONAL ACCESSORIES

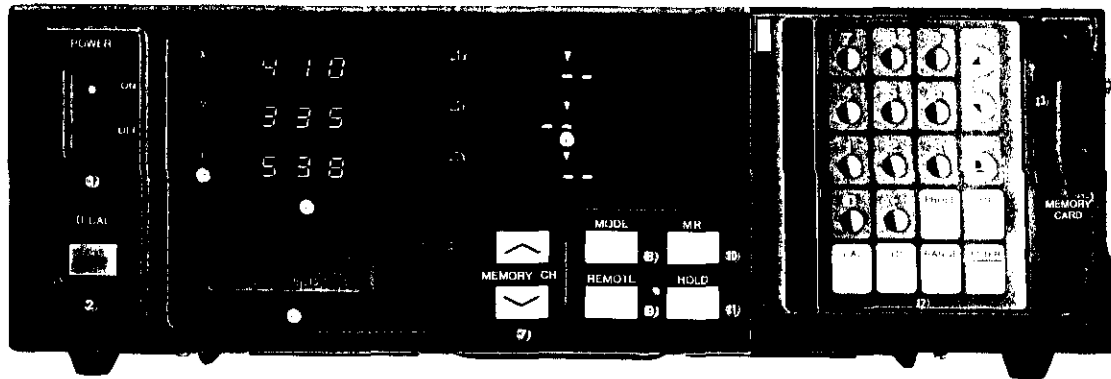
- Memory cards:
Memory Card CA-A14 or Multi-Probe Memory Card CA-A17 increase the number of memory channels to 100 from the standard 11.
- Analyzer cards:
Analyzer Card-G CA-A15 and Multi-Probe Analyzer Card-G CA-A18 allow convenient white-balance adjustment based on a green standard; Analyzer Card-R CA-A16 and Multi-Probe Analyzer Card-R CA-A19 allow convenient white-balance adjustment based on a red standard. All Analyzer Cards also increase the number of memory channels to 100 from the standard 11.
- Multi-Probe Expansion Board CA-A13 allows the use of up to five measuring probes for simultaneous measurements of multiple points on CRT screen.
- Additional measuring probes are available. Measuring Probe CA-A10 has a 2m (6.6 ft.) cord; Measuring Probe CA-A12 has a 5m (16.4 ft.) cord.
- GP-IB Interface Board CA-A20 allows communication with other devices using a GP-IB (IEEE-488) system.

APPLICATIONS

- White-balance adjustment and inspection on CRT production lines
- Quality control and shipping inspection by CRT manufacturers
- Receiving inspection of CRTs by computer manufacturers

NAMES OF PARTS

Front View

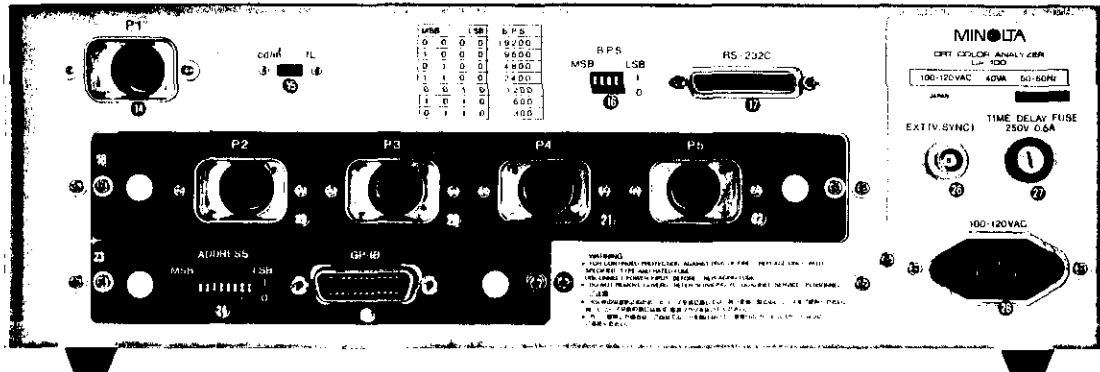


Photograph shows CA-100 with keyboard cover removed.

- 1 POWER switch
- 2 0-CAL: Performs zero calibration when pressed after covering receptor area of measuring probe.
- 3 Liquid crystal display: Displays a variety of information including memory channel, ID label, error messages, etc. depending on present status of CA-100.
- 4 Display mode indications: Indicate present display mode: xyY, T ΔuvY, or RGB*
- 5 Digital display: Displays measurement data in numerical form.
- 6 Analog display: Displays percent difference between measured value and standard color depending on present display mode.
- 7 MEMORY CH \square and \square : Selects memory channel.
- 8 MODE: Selects display mode.
- 9 REMOTE: Sets/cancels remote-control mode for RS-232C data communication.
- 10 MR: Recalls standard color data from memory.
- 11 HOLD: Sets/cancels display hold.
- 12 Memory function keys: Used when setting data (such as standard color data or ID label) to be stored in memory; normally covered by keyboard cover.
- 13 Memory card slot: Optional Memory or Analyzer cards can be inserted to expand the functions of the CA-100.

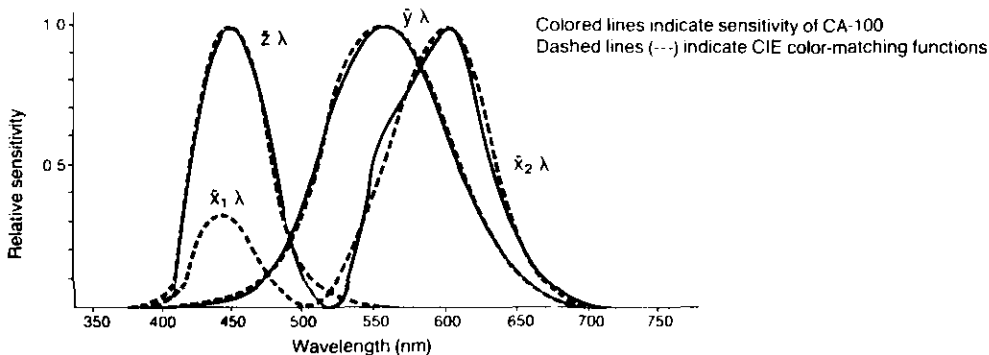
* Available with optional accessories

Rear View



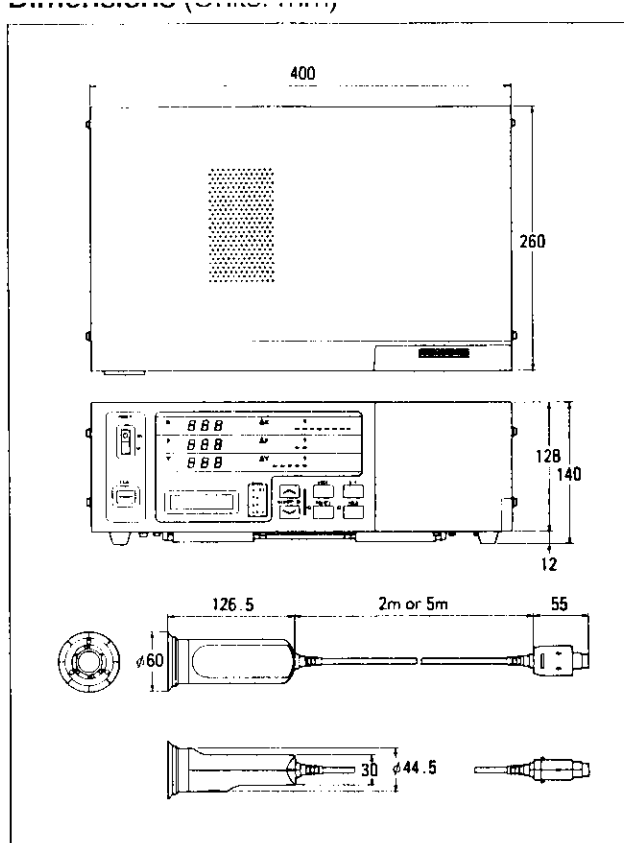
- 14 Probe connector P1: Connects to measuring probe.
- 15 Luminance-unit selector switch: cd/m² or fL can be selected.
- 16 Baud-rate selector DIP switches: Selects baud rate for RS-232C data communication.
- 17 RS-232C connector
- 18 Multi-Probe Expansion Board: Optional accessory provides four additional probe connectors for connecting additional measuring probes to allow simultaneous measurements of multiple points.
- 19 - 22 Probe connectors P2 - P5: (Only with optional Multi-Probe Expansion Board installed) Allows connection of additional measuring probes.
- 23 GP-IB Interface Board: Optional accessory allows connection to a GP-IB system.
- 24 Address DIP switches: (Only with optional GP-IB Interface Board installed) Selects address of CA-100 when using GP-IB system.
- 25 GP-IB connector: (Only with optional GP-IB Interface Board installed) Connects CA-100 to GP-IB system.
- 26 EXT (V. SYNC) terminal: Connects to an external synchronization-signal source for using EXT SYNC mode.
- 27 Fuse holder
- 28 AC input terminal

SPECTRAL SENSITIVITY

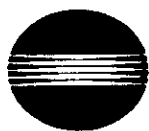
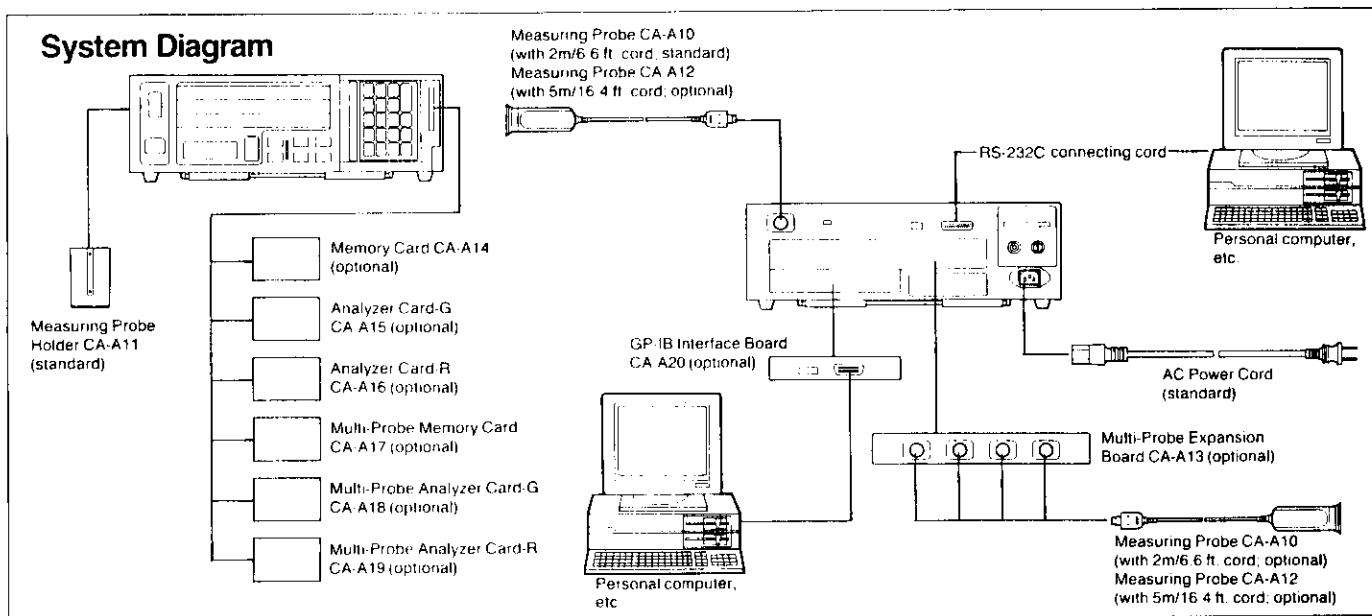


Specifications

Type:	CRT color analyzer
Luminance measuring range:	0.20 to 999cd/m ² or 0.06 to 292fL (D ₆₅), luminance units selectable via switch on back panel
Display modes:	xyY, T ΔuvY modes standard; optional analyzer mode (green standard or red standard)*
Synchronization modes:	NTSC; PAL; EXT; UNIV.
Display values:	Digital: xyY; T ΔuvY; RGB* Analog: Δx Δy ΔY, R/G, B/G, ΔG*, ΔR, B/R, G/R*
Memory:	11 channels; 100 channels with memory card or analyzer card*
Accuracy:	Y: ± 2% ± 1 digit xy: ± 0.002 (Measurement conditions: standard monitor, luminance 10.0cd/m ² or above, D ₆₅)
Repeatability:	Y: ± 0.3% ± 1 digit xy: ± 1% ± 1 digit (0.20cd/m ² ≤ Y ≤ 3.00cd/m ²) ± 0.3% ± 1 digit (3.00cd/m ² < Y ≤ 999cd/m ²)
Measurement rate:	NTSC: 10 times/s PAL: 8 times/s EXT: 7 times/s (for 60Hz synchronization signal) UNIV: 5 times/s
Other functions:	Calibration to user-selected reference; storage of ID name; analyzer mode*; simultaneous measurements of multiple points*; variable analog display range
Data communication:	RS-232C interface (baud rate: 300 to 19200bps, set to 9600bps at factory); GP-IB (IEEE-488)*
Operating temperature range:	0 to 40°C (32 to 104°F); 85% humidity (at 35°C/95°F with no condensation)
Power:	AC 100 to 120V, 50/60Hz, 40VA or AC 200 to 240V, 50/60Hz, 40VA
Dimensions:	400 x 140 x 260mm (15-3/4 x 5-1/2 x 10-1/4 in.)
Weight:	5.5kg (12.1 lb.)
Standard accessories:	Measuring Probe CA-A10 (with 2m/6.6 ft. cord), AC power cord, Measuring Probe Holder CA-A11, fuse (1), basic operation sheets (5)
Optional accessories:	Measuring Probe CA-A10 (with 2m/6.6 ft. cord), Measuring Probe CA-A12 (with 5m/16.4 ft. cord), Multi-Probe Expansion Board CA-A13, GP-IB Interface Board CA-A20, Memory Card CA-A14, Multi-Probe Memory Card CA-A17, Analyzer Card-G CA-A15, Analyzer Card-R CA-A16, Multi-Probe Analyzer Card-G CA-A18, Multi-Probe Analyzer Card-R CA-A19



* Function available with optional accessory only.
Specifications subject to change without notice



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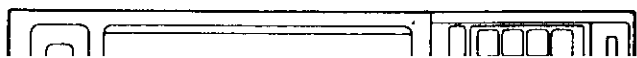
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10, Teban Gardens Crescent, Singapore 2260

Specifications

Type:	CRT color analyzer
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* Function available with optional accessory only.
Specifications subject to change without notice

System Diagram



Measuring Probe CA-A10
(with 2m/6.6 ft. cord; standard)
Measuring Probe CA-A12
(with 5m/16.4 ft. cord; optional)