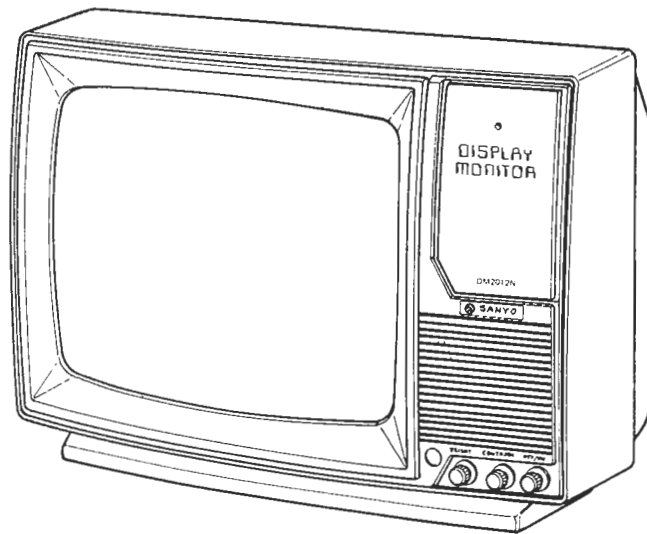




SANYO

**DM2012N/DM2112N
DM2212N**



SANYO SOLID STATE DATA DISPLAY

OWNER'S MANUAL

INTROUDUCTION

The Model DM2012N/DM2112N/DM2212N new solid state data displays are precision engineered products designed for use with the computer system which outputs are composite video signals.

The picture tube of Model DM2012N employs an implosion proof white phosphor, Model DM2112N employs green phosphor and Model DM2212N employs orange phosphor.

These data displays are equipped with DC restoration (In the absence of a data signal, the data display screen will be fully black: no raster).

Solid state electronics used in these data displays provide improved reliability and superior performance even in continuous duty applications.

INSTALLATION

CONNECT..... Data display to an outlet supplying 117 volts, 60 Hertz, alternating current (AC) only.

FOLLOW..... Instruction on all tags and labels before attempting to operate your display.

CAUTION:

The circuit is switched secondarily. The whole unit therefore is always connected to the mains.

CAUTION

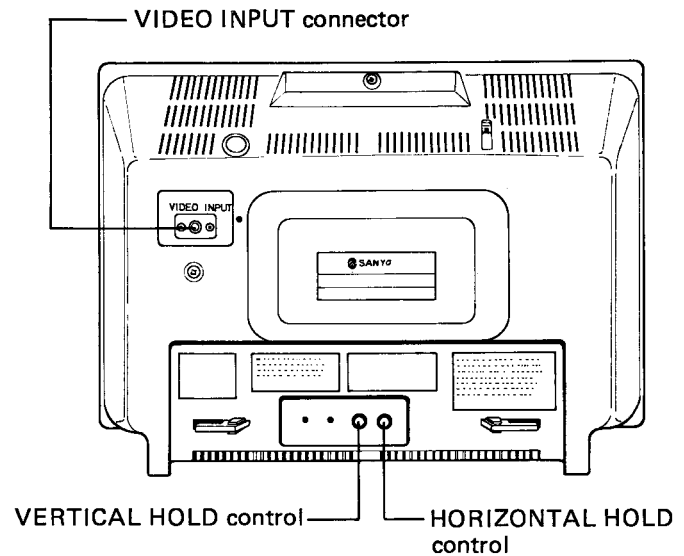
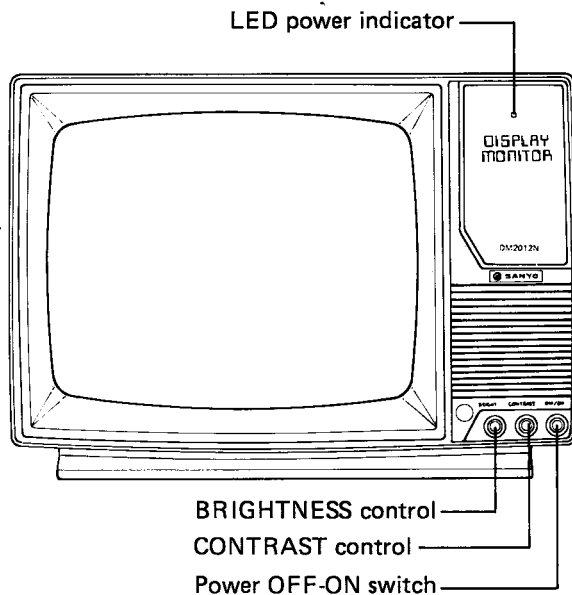
- The circuit is switched secondarily. The whole unit therefore is always connected to the mains.
- For installation, avoid excessively hot or humid places as well as dusty locations. Damage to the cabinet or electronic parts failures may result.
- Avoid any small object or water to fall in the cabinet through ventilation slits to prevent from component or circuit failures, or even dangerous fire hazard.
- The cabinet is provided with many ventilation flits on its rear and bottom. Do not attempt to cover with cloth, pads, or any other materials which may interfere proper ventilation.
- High voltage bearing components are contained in the cabinet. Do not attempt to remove the rear cover for safety against possible shock hazard. Refer servicing to qualified service personnel.

SPECIFICATIONS

| | |
|---------------------|---|
| Input Signals | Composite Video Signal, Negative SYNC. $1.0^{+0.5}_{-0.3}$ Vp-p, 75 ohm |
| CRT Size | 31 cm diag. (12 inch diag.) |
| Phosphor | P4 (White) Model DM2012N P31 (Green) Model DM2112N PDB (Orange) Model DM2212N |
| Semiconductors | IC 1 Transistors 14 Diodes 16 |
| Video Amp Bandwidth | 18 MHz |
| Display Area | Horizontal 21 cm (46 μ S) x Vertical 15 cm (18.23 mS) |
| Display Format | 1920 Characters max. (80 char. x 24 lines) |
| Scanning Frequency | Horizontal 15.80 kHz, Vertical 60 Hz |
| Power Input | AC 117 V, 60 Hz |
| Power Consumption | 34 W |
| Dimensions | 39.5 (W) x 28.5 (H) x 31.5 (D) cm |
| Weight | 6.2 kg. |

*Specifications are subject to change without notice.

IDENTIFICATION AND OPERATION OF CONTROLS



POWER OFF-ON SWITCH

Rotate control clockwise for power "ON" counter clockwise for power "OFF".

LED POWER INDICATOR

Illuminates to indicate that power is "ON".

BRIGHTNESS CONTROL

This control should be used to set the display background brightness. When displaying text or graphics, the background should be set to fully black.

CONTRAST CONTROL

This control permits adjustment of the contrast between the display and its background. Use the CONTRAST control to compensate differences in room lighting.

VERTICAL HOLD CONTROL

This control permits adjustment of vertical stability. In the event the picture "rolls" upward or downward as shown in Fig. 1, turn the VERTICAL HOLD control clockwise or counterclockwise until the picture stabilizes.

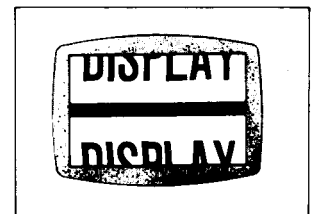


Fig. 1

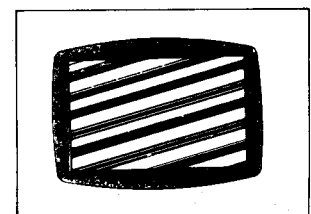


Fig. 2

HORIZONTAL HOLD CONTROL

This control permits adjustment of horizontal stability. In the event the picture "tears" leftward or rightward as shown in Fig. 2, turn the HORIZONTAL HOLD control clockwise or counterclockwise until the picture stabilizes.

VIDEO INPUT CONNECTOR

This phonojack accepts the 1.0 volt p-p video data signal from the computer. Input impedance is fixed at 75 ohms. Use a coaxial cable with phonoplug for this connection. (Fig. 3)

- Use a coupling capacitor for the input with an input signal having a DC voltage of 3V or more.

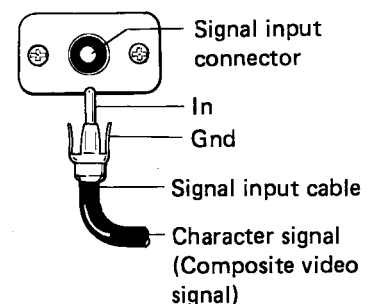
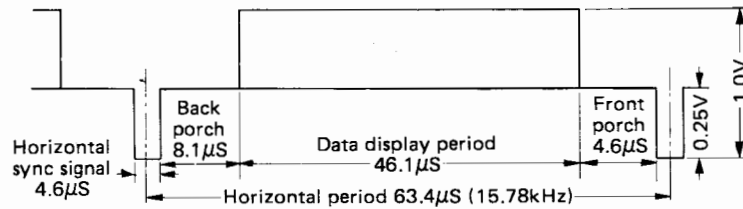


Fig. 3

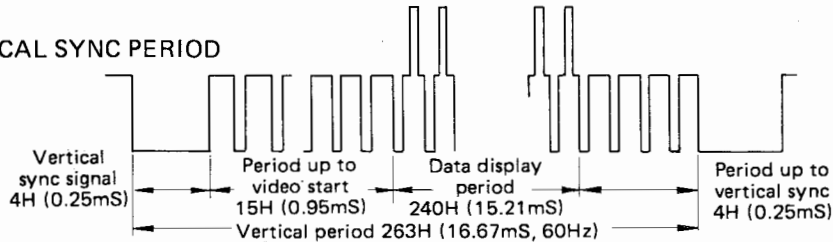
INPUT SIGNALS

The figures below show the recommended signal waveforms and their timing (with 75-ohm terminal).

HORIZONTAL SYNC PERIOD



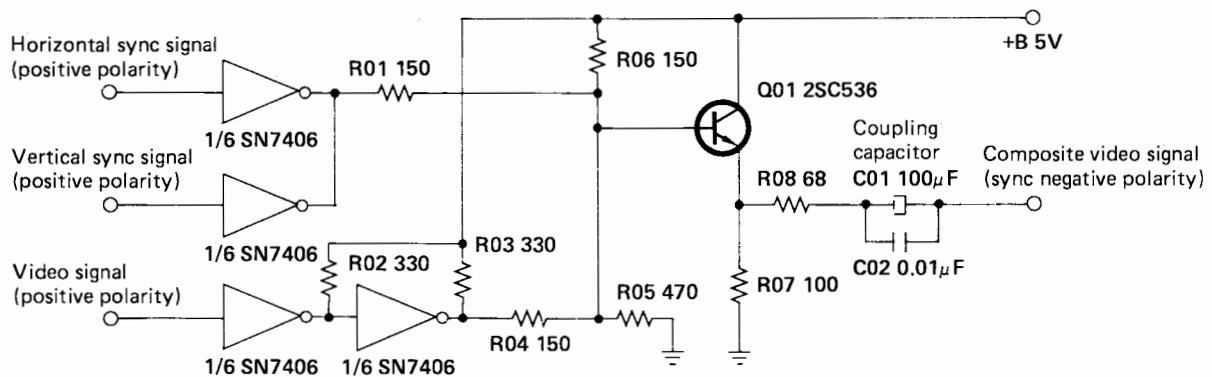
VERTICAL SYNC PERIOD



- Set the sync signal distortion (overshoot and under-shoot) to less than 10%.
- Set the sync signal to 30% \pm 5% of the input signal's amplitude.

HOW TO PROVIDE THE COMPOSITE VIDEO SIGNAL

When the output signal from the signal generator is video sync separated, convert it into a composite sync signal using the circuitry in the figure below.



When signals other than those recommended are received, trouble such as that described in the table below will arise.

| TROUBLE | CAUSE | TROUBLE | CAUSE |
|------------------------------------|--|---|--|
| Picture is too wide. | Data display period is more than 46 μ s. | Picture extends too far vertically. | Vertical blanking period is less than 28H. |
| Picture is too narrow. | Data display period is less than 46 μ s. | Picture tends to top. | Period up to the vertical sync signal is more than 4H. |
| Picture tends to right. | Value given when front porch is subtracted from back porch is more than 3.5 μ s. | Picture tends to bottom. | Period up to the vertical sync signal is less than 4H. |
| Picture tends to left. | Value given when front porch is subtracted from back porch is less than 3.5 μ s. | Horizontal bars appear on picture. | Horizontal sync frequency is no longer 15.80 kHz. |
| Picture is cramped vertically. | Vertical blanking period is more than 28H. | Picture flows vertically. | Vertical sync frequency is no longer 50 Hz. |