Wells-Gardner Electronics Corporation

User Manual for
D9400 D9410 Series
Digital-Control Color Monitor

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Revision ORG/E11004
D9400 User manual
Date 2-10-06

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Picture Tube.

- **Size: 27V Regular and Flat size to customer requirement**
- **Dot Pitch: .83mm**

Signal Input.

- **Video Input: Analog, Positive Signal 4 / 2.2Volts CGA (0.7V p-p)VGA**
- **Horizontal Sync: TTL Level, Positive or Negative Pulse**
- **Scanning : 15.75 KHz-50KHz**
- **Vertical Input: TTL Level, Positive or Negative pulse**
- **Scanning : 40-100Hz**

Power Supply.

- **Power Input : 90-240 VAC, 50/60Hz**
- **Fuse Rating: 250V, 3.15A**
- **Power Consumption**
  Normal : less than 150W

OSD (On Screen Display) Control:

Operating Temperature: 0°C - 55°C

Operating Humidity: 10% - 90% (Noncondensing)

Net Weight : 17kg (37lbs) Standard frame

TECHNICAL FEATURES:

Microprocessor control with OSD (On screen display menu).
Microprocessor recognizes the input computer signal and signal output from the customer control board connected to the main board by a flat cable.

Universal AC Input Voltage.
Power supply operates on 90-240 VAC at 60/50Hz for use all over the world.

A (NO SIGNAL IN) message is displayed on the screen if no signal is present at the signal-input cable while the monitor is powered on.

Control panel.
If you require different display characteristics other than the factory mode presets of size, position, color settings, use the control panel to program it to your requirements in each resolution mode. These adjusted settings are kept in memory even if you change resolution mode or turn off the monitor.

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FEATURES:

I²C BUS control.

The monitor is designed with I²C BUS control for simplifying the circuitry.
Automatic mode recognition of preset factory modes
No control pots to wear out

SET UP:

Setting up your monitor is easy. All you have to do is make a few simple connections and adjustments. The procedure is as follows:

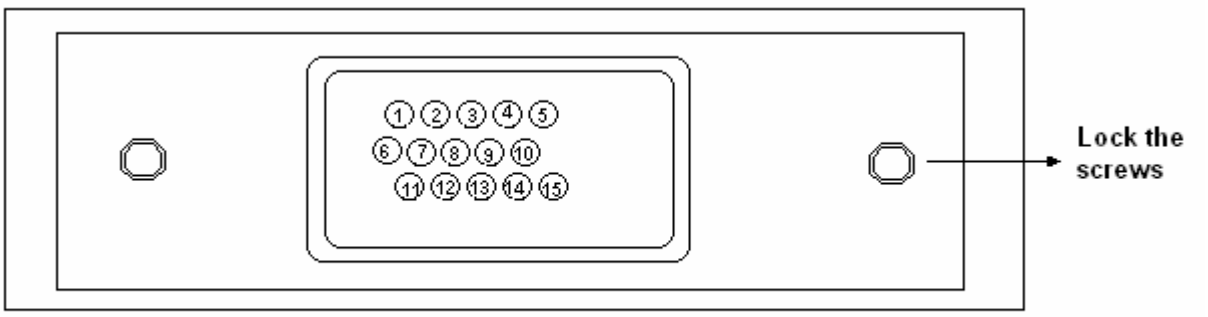
START UP:

Your monitor starts up automatically when you insert the power plug to power source.

Signal Cable Connection.
Connect the 15pin-signal cable to the source and lock both screws to ensure that the monitor is properly grounded.

D type 15pin connector:

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VIDEO RED	9	N.C.
2	VIDEO GREEN	10	GROUND
3	VIDEO BLUE	11	N.C.
4	N.C.	12	SDA
5	N.C.	13	HOR-SYNC
6	VIDEO RED GROUND	14	VER-SYNC
7	VIDEO GREEN GROUND	15	SCL
8	VIDEO BLUE GROUND		



CONTROLS AND ADJUSTMENTS:

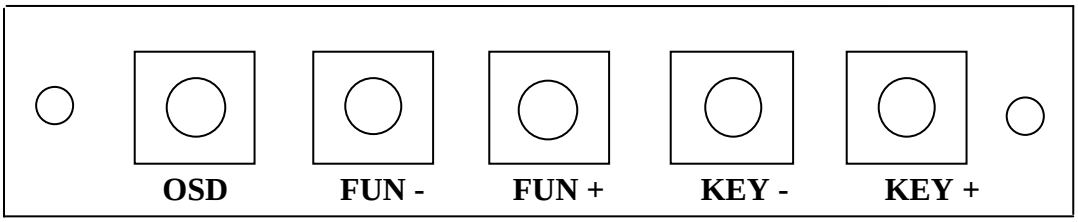
There are fiver switches on the control panel. The adjustable controls allow the best display status for individual requirements.

1.0 Key Function.

1. OSD / EXIT
OSD – Call the Main-Menu OSD

2. FUN – / FUN +
When the Main-Menu is displayed, you can select each function using these keys

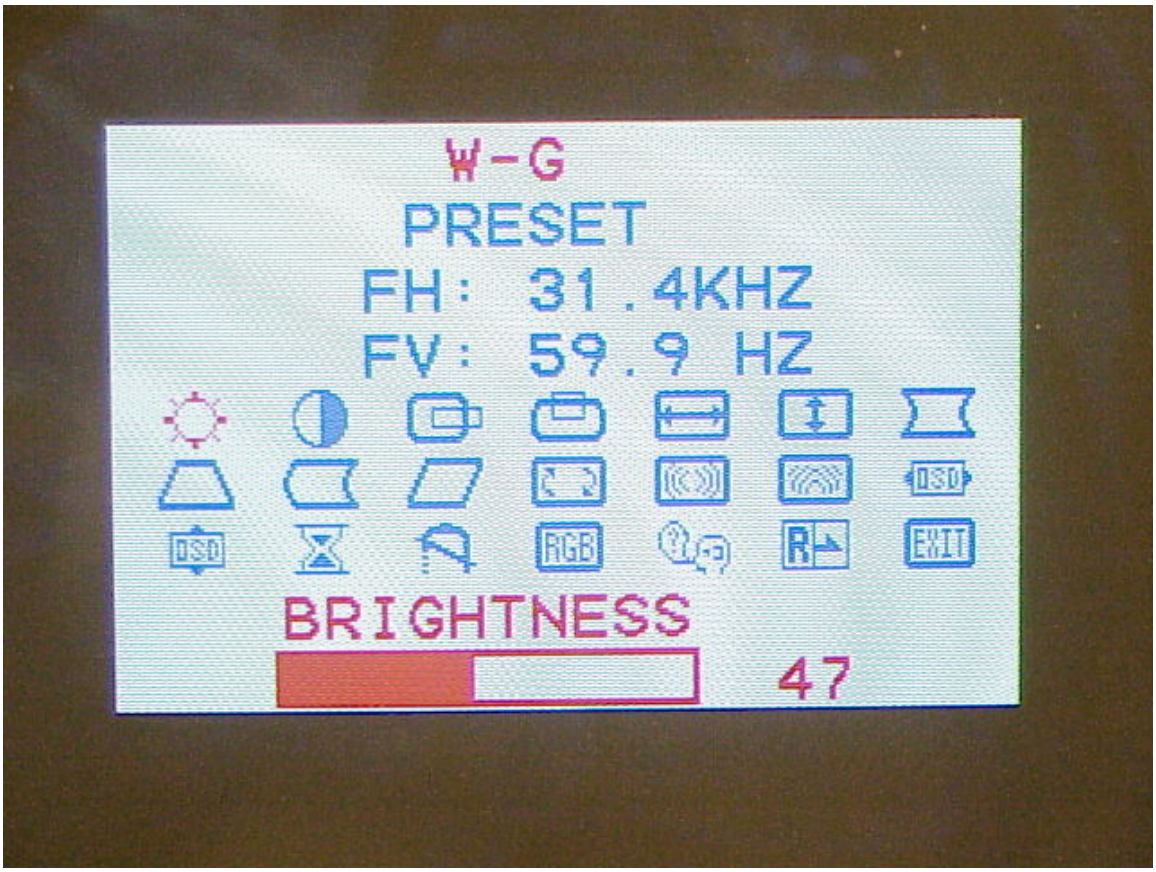
3. KEY - / KEY +
When the Sub-Menu is displayed, you can change the amplitude of The selected function of the screen using these keys.



USER O.S.D. CONTROL

Location	Adjustment Method	Function
CUSTOMER CONTROL PCB	OSD CONTROL	Brightness Contrast Horizontal Position Vertical Position Horizontal Size Vertical Size Side Pincushion Trapezoid Pin Balance Parallelogram OSD Time Degauss RGB screen Color
Main PCB Factory Adjusted	VR control : VR501, VR601 VR202,VR201 FBT	H Size -H-Cen, Fil, B+ Adj - Focus and Screen

*** Note : (Factory adjusted and epoxyed VR501 VR601) (Hot melted screen FBT)**
OSD User Controls



A. ADJUSTMENT PROCEDURE .
BRIGHTNESS ADJUSTMENT

1) **Press the "OSD" key The Main-Menu OSD will come up as pictured above.**
2) **Search "BRIGHTNESS" sub-menu using "+ or - FUN" key on the Main-Menu OSD.**
3) **The "BRIGHTNESS" OSD color changes from blue to red.**
4) **Adjust Brightness as much as you want using "+ or -" key.**
5) **After finishing the Brightness adjust, press the "OSD " key. The "OSD" will Disappear. The new Brightness value will be saved automatically.**
6) **If you want to adjust other functions (sub-menu), search the function using "+ or -" keys, and then repeat the same procedures of steps 2-5. See next page.**
7) **Press the "OSD" key again to finish adjustments and the OSD will disappear. If no action is taken in the OSD, the menu will disappear by itself.**

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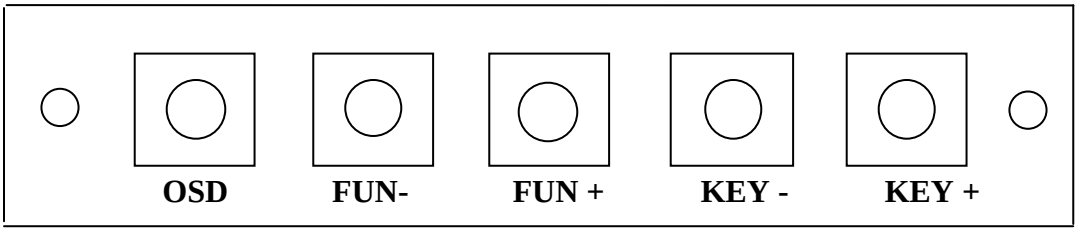
OTHER “OSD” ADJUSTMENTS



OSD MENU AND USER FUNCTIONS.

- **CONTRAST - PICTURE CONTROL** — **ADJUSTMENT** — **SAME ABOVE**
- **H. POSITION - SCREEN POSITION** — **ADJUSTMENT** — **SAME ABOVE**
- **V. POSITION - SCREEN POSITION** — **ADJUSTMENT** — **SAME ABOVE**
- **H. SIZE - SCREEN SIZE** — **ADJUSTMENT** — **SAME ABOVE**
- **V. SIZE - SCREEN SIZE** — **ADJUSTMENT** — **SAME ABOVE**
- **PINCUSHION - SCREEN GEOMETRY** — **ADJUSTMENT** — **SAME ABOVE**
- **TRAPEZOID - SCREEN GEOMETRY** — **ADJUSTMENT** — **SAME ABOVE**
- **PIN BALANCE (BOW)- SCREEN GEOMETRY** — **ADJUSTMENT** — **SAME ABOVE**
- **PARALLEL - SCREEN GEOMETRY** — **ADJUSTMENT** — **SAME ABOVE**
- **TILT - SCREEN ROTATION** — **ADJUSTMENT** — **SAME ABOVE**
- **HORIZONTAL MOIRE** — **OPTIONAL** — **FUNCTION**
- **VERTICAL MOIRE** — **OPTIONAL** — **FUNCTION**
- **OSD - HORIZONTAL POSITION** — **ADJUSTMENT** — **SAME ABOVE**
- **OSD - VERTICAL POSITION** — **ADJUSTMENT** — **SAME ABOVE**
- **OSD - TIME** — **ADJUSTMENT** — **SAME ABOVE**
- **DEGAUSS - SCREEN COLOR PURITY** — **ADJUSTMENT** — **SAME ABOVE**
- **COLOR SCREEN - COLOR PREFERENCE** — **ADJUSTMENT** — **SEE NEXT PAGE**
- **LANGUAGE - OSD LANGUAGE** — **ADJUSTMENT** — **SEE NEXT PAGE**
  The menu is available in NINE POPULAR languages
- **RECALL - RECALL FACTORY ADJUSTMENTS** — **ADJUSTMENT** — **SEE ABOVE**
  When the “RECALL” key is pressed, all user’s adjustment values are changed to the factory values.

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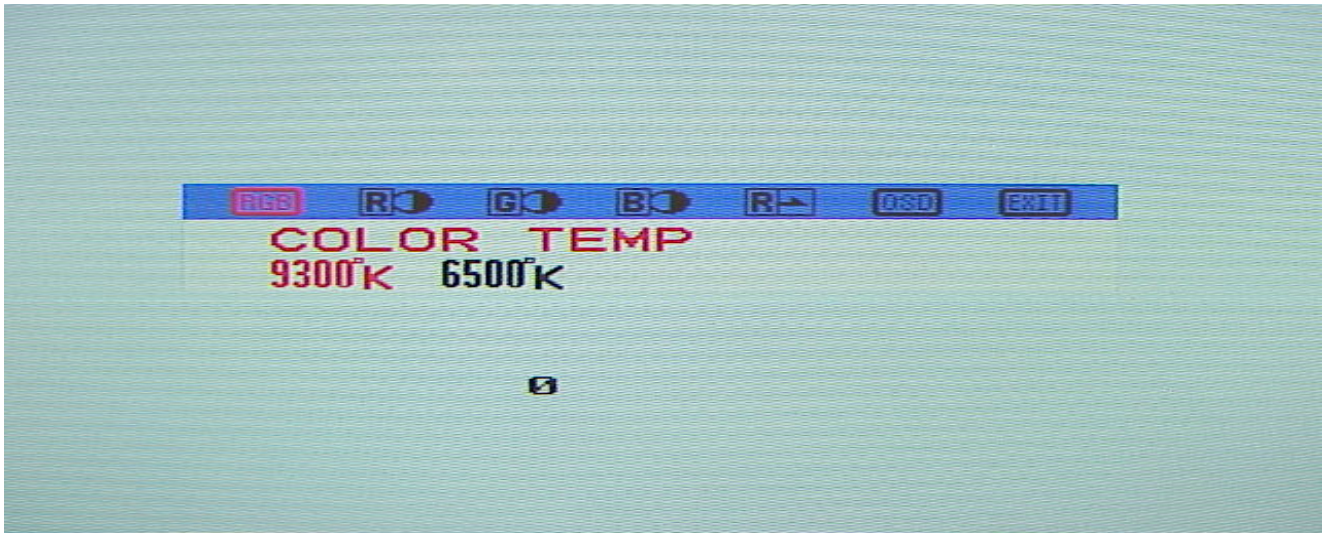
COLOR SUBMENU RGB

SCREEN COLOR - COLOR PREFERENCE



- **COLOR ADJUSTMENT. Factory preset.**
  COLOR 1 - 9300°K: X=0.285, Y=0.293
  COLOR 2 - 6500°K: X=0.312, Y=0.329

COLOR ADJUSTMENT - USER PREFERENCE

1) **Press the "OSD" button to show the Main-Menu OSD.**

2) **Search the "RGB - ICON" sub-menu by using "+ or - Key" key on the Main-Menu OSD.**

3) **SELECT the "RGB" by pressing "+ Key". The color Sub-Menu OSD appears as Shown by the figure below. RGB BOX WILL BE FLASHING RED.**

4) **Press "+ or- KEY" to select COLOR 1 (Cool color) or COLOR 2 (Warm color) Press "+ or - FUN" to select "RED", "GREEN" or "BLUE" for adjustment to the User's preference. The " + or- KEYS " will adjust the selected RED,GREEN,BLUE Color on the viewing screen. The selected item will change the OSD color and the White Screen from white to the users preference.**

5) **The box labeled R→ Will return the changed settings to the factory preset values if desired**

6) **Using the "+ or- KEY" to select the " OSD " box will return the main menu. Using the "+ or- KEY" to select the " EXIT " box will turn off the menu. (Exit and save. Save is automatic)**

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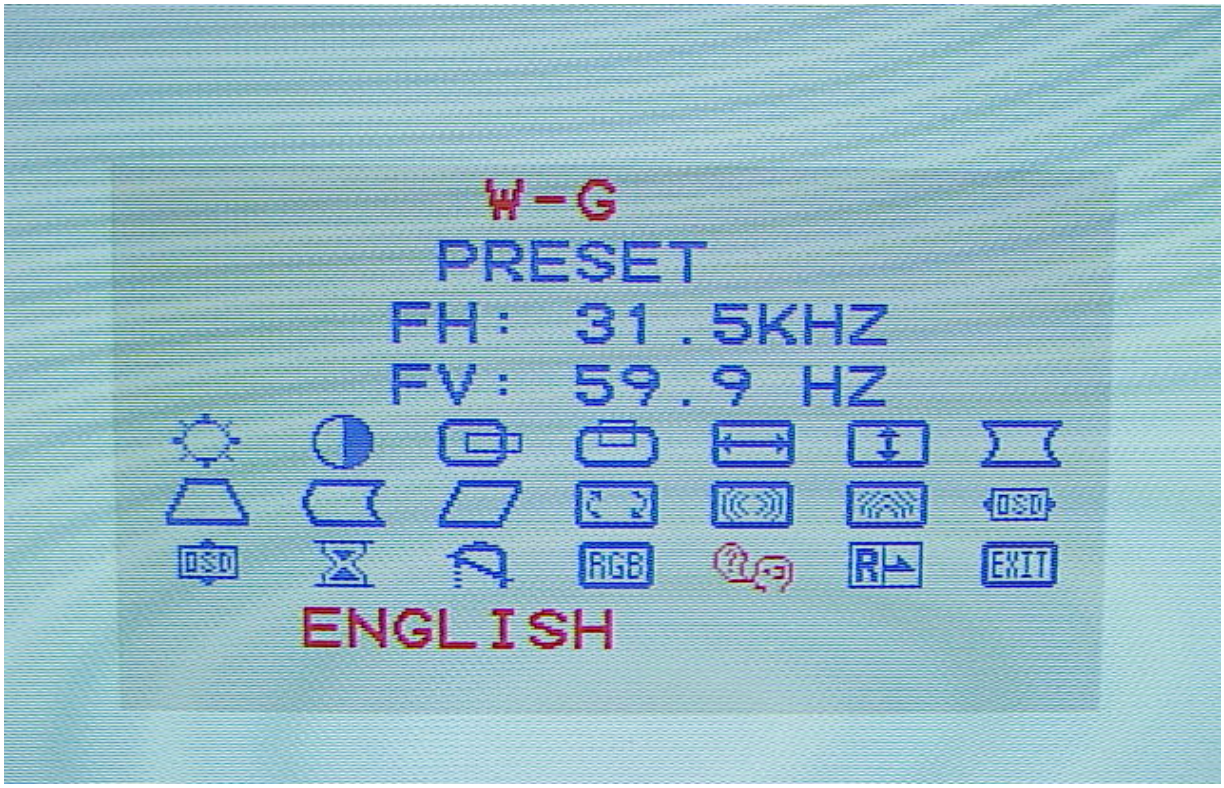
LANGUAGE - USER PREFERENCE



LANGUAGE SELECTION - USER PREFERENCE

1) **Press the "OSD" button to show the Main-Menu OSD.**

2) **SELECT the "LANGUAGE - ICON" by pressing "+ FUN" Key. The language Sub-Menu OSD appears as Shown by the figure above. The language BOX WILL BE FLASHING RED.**

3) **Press "+ or - KEY" to select one of the desired languages for the users Preference. This menu is available in nine languages.**

4) **Press the "OSD" button to turn off the Menu (OSD). If no action is taken in the OSD, the menu will disappear by itself. (Exit and save. Save is automatic)**

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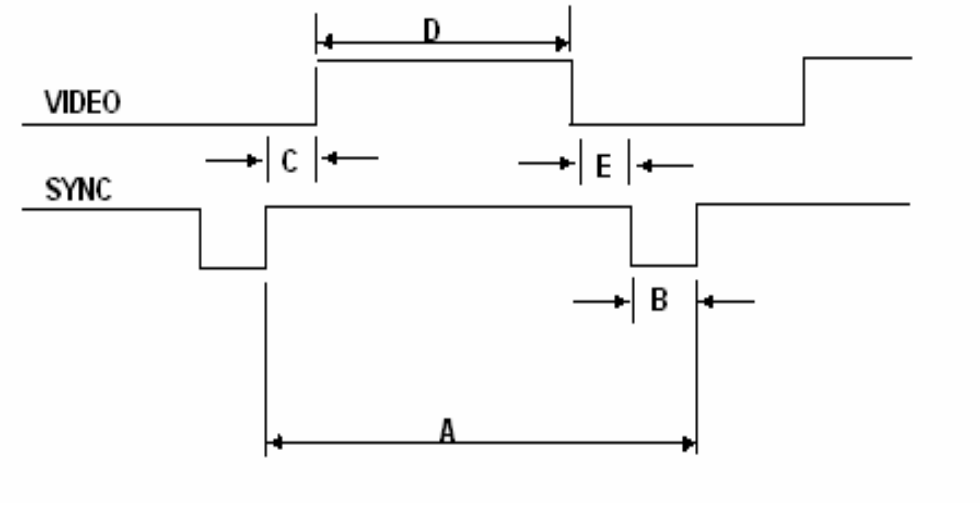
TIMING CHART:

5 Standard Factory Pre-Set Timing Modes.

Can be set to any customer requirement of 15.75-40Khz hor and 40-100Hz vert.



Timing shown is based on 801GC/GX signal generator

HORIZONTAL	CGA 640X240	MID- RES 773X384	Mode 3 640X480 VGA_M3	Mode4 720X400 VGA_2	Mode 5 800X600 VG900602
Scan freq.	15.725kH	24.394kHz	31.469kHz	31.469Khz	37.879KHz
scan per.	63.594us	41.00us	31.777us	31.777us	26.00us
sync pulse	4.688us	3.00us	3.813us	3.813us	3.200us
front porch	2.187us	2.910us	0.636us	0.636us	1.000us
active vid.	50.00us	30.690us	25.422us	25.422us	20.000us
back porch	6.719us	4.440us	1.906us	1.906us	2.200us
sync polarity	(-)	(-)	(-)	(-)	(+)
VERTICAL					
Vert. scan freq.	60.018Hz	57.534Hz	59.941Hz	70.087Hz	60.317Hz
scan per.	16.662ms	17.384m	16.683ms	14.268ms	16.579ms
sync pulse	0.191ms	0.164ms	0.064ms	0.064ms	0.106ms
front porch	0.190ms	0.451ms	0.318ms	0.318ms	0.02ms
active vid.	15.263ms	15.621ms	15.253ms	12.711ms	15.840ms
back porch	1.018ms	1.148ms	1.048ms	1.048ms	0.607ms
sync polarity	(-)	(-)	(-)	(+)	(+)

Lee

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