Ikegami

20-Series High Resolution Color Monitors

TM20-20RH/RP, TM14-20RH/RP

20-Series Color Monitors

The 20-Series color monitors are Auto Setup broadcast monitors designed to meet today's demanding professional needs with state-of-the-art digital technology.

With optional plug-in decoder borads, the 20-Series will accept different TV standards (NTSC, PAL-B, SECAM, PAL-M, D1, D2, D3) which can be selected (NTSC, PAL-B, SECAM, PAL-M: automatically selected)

- In-line gun CRT with fine dot pitch shadow mask.

- Auto setup module are standard.

- Beam Feedback System (BFS)

- Infrared Remote Controller (Option)

- Optional adaptive comb filter

Features

High Performance Cathode Ray Tube

- Fine Dot Pitch Shadow Mask results in high resolution. Dot trio pitch 0.31mm for TM14-20RH/RP and 0.43mm for TM20-20RH/RP.
- In-line Self Converging Electron Gun assures convergence stability.
- Controlled Phosphors to ABS or EBU Standards provide consistent and known colorimetry.
- Black Matrix surrounding Phosphor Dots assures high contrast under bright ambient lighting.
- 13V and 19V units available.

Digital Control System (DCS)

The preset control system is completely digitized with the 8 bit MPU and the 10 bit D/A converter. It enables several status indications, and auto setup capability with an optional PROBE (ASP-15C). Since a rotary encoder for preset controls and variable resistors for manual controls (CONTRAST,, BRIGHTNESS, CHROMA, HUE) are provided, the 20-series monitors can be adjusted in the same manner as conventional analog-controlled monitors.

Auto Setup System

By using an optional Auto Setup Prove (ASP-15C), the following functions can be automatically setup at a reference level or stored in less than 50 seconds.

- CONTRAST
- CHROMA
- RGB BACKGROUND
- BRIGHTNESS
- HUE(NTSC)
- GB GAIN

Remote Control Operation

An infrared remote controller (RCT-20) is provided as an option. With each of them, the following functions can be remotely controlled for up to 99 monitors.

- DEGAUSS
- DEALY SELECT
- VIDEO SELECT
- APERTURE ON/OFF
- COLOR/MONO
- RED GUN ON/OFF
- WIDE/NORMAL/UNDERSCAN
- GREEN GUN ON/OFF
- MENU
- SAFE TITLE

- BLUE GUN ON/OFF
- RGB BACKGROUND
- H. PHASE
- HUE
- GB GAIN
- HEIGHT
- CHROMA
- SYNC INT/EXT
- WIDTH
- CONTRAST
- H. CENT
- BRIGHTNESS
- V. CENT

Beam Feedback System(BFS)

To insure long-term black level stability, the 20-series monitor incorporates Beam Feedback System(BFS) which detects CRT cathode current deviation and eliminates brightness changes due to changes in CRT emission.

Adaptive Comb Decoder*

By incorporating a CCD 1H delayline into the standard comb filter, cross luminance and cross color are improved over conventional monitors. In addition, by replacing it with an optional Adaptive Comb Filter Decoder* (NTSC only), performances of 20-Series are significantly improved for precision color monitoring or graphics display.

Improvements include:
- Chroma edges are greatly improved by patented process based on use of luminance transitions.
- Dot crawl at chroma transitions is eliminated.
(* Under license from Faroudja laboratories)

Wide Range of Input Capabilities

The 20-Series can accept 3 composite video inputs and an RGB or a component (Y, R-Y, B-Y) input as standard. Optional plug-in decoder boards are available for Digital (D1, D2, D3), PAL-B, SECAM, PAL-M TV standard systems.

Modular Concept

The 20-Series provides modular construction for ease of repair and adjustment. The boards of video system are plug-in, and many of the boards can be removed with the monitor mounted in a rack.

Specifications

Input Voltage 100~120, 200~240VAC+/-10%(Auto select)50/60Hz
Input Power 160W
Standard Accessory Remote connector, Power cable,Operation Manual
Input Facilities
 ●Input Signals *Encoded video
NTSC or PAL-B or PAL/SECAM or PAL-M 3ch
TM20/14-20RH….. NTSC Decoder standard
TM20/14-20RP….. PAL Decoder standard
Other decoders are options.
(*Two of them can be installed simultaneously
-two slots construction)
*R/G/B or Y,R-Y,B-Y
(MII or BETA switchable internally) 1ch
*D1(4:2:2), D2(D3) –Option
 PARALLEL input 1ch
 SERIAL input 2ch
 SERIAL output 1ch(monitor OUT)
*Y/C (option) 1ch
 ●Input Level *Encoded Video
 Composite 1Vp-p
 Non Composite 0.7Vp-p
 *RGB 0.7Vp-p Non Composite
  Sync on Green
  No Sync on Red + Blue or
  Sync Red Green Blue or External Sync
 *Analog Component (Y, R-Y, B-Y)

MII	Y signal	White level	700mVp-p
(N10)		Setup level	0mVp-p
(SMPTE)		Sync level	300mVp-p
		R-Y signal p-p level	525mVp-p
		B-Y signal p-p level	525mVp-p
		(100/0/75/0 Color bar)	
Beta	Y signal	White level	714mVp-p
		Setup level	53.6mVp-p
		Sync level	286mVp-p
		R-Y signal p-p level	700mVp-p
		B-Y signal p-p level	700mVp-p
		(100/7.5/75/7.5 Color bar)	
*Y/C	Y signal	1Vp-p	
	C signal	0.286Vp-p (burst level)	

 ●Connection Bridging BNC connectors, high impedance,
isolated from chassis ground.
 ●Return loss Less than 46dB (up to 10MHz)
 ●Crosstalk between adjacent channel
Less than 50dB (up to 6MHz)
 ●Hum suppression 60dB with 4V RMS common mode rejection
 ●Remote control (via 10 pin connector)
Video input selector (A/B/C)
AUX (RGB, Y/R-Y/B-Y)
Sync
Color killer (COLOR/MONO)
Tally (ON/OFF)
Display Device In-line gun, shadow mask high resolution CRT
TM14-20RH/RP: 0.31mm
TM20-20RH/RP: 0.43mm
 ●Chromaticity

		X	Y
*ASP standard		X	Y
	R	0.630	0.340
	G	0.310	0.595
	B	0.155	0.070
*EBU standard		X	Y
	R	0.640	0.330
	G	0.290	0.600
	B	0.150	0.060

*Tolerance +/-0.005

●Brightness/Contrast
  *Preset Contrast
  35Ft-L at factory setting(100% window signal)
  *Max brightness
  TM14-20RH/RP:More than 70Ft-L w/window signal
  TM20-20RH/RP:More than 70Ft-L w/window signal
●Resolution (at 35Ft-L)
  TM14-20RH/RP: 700TV Lines (at center)
  TM20-20RH/RP: 700TV Lines (at center)
Output Facilities (option)

Y	0.7Vp-p
R-Y	0.525Vp-p
B-Y	0.525Vp-p
(100/0/75/0 Color bar)	

Video Signal System
 ●RGB Response 50 ~ 10MHz +1, -3dB
 ●Luminance
  *Frequency Response
   w/o Notch: +/-1dB at 50Hz to 7MHz
   w/Notch: -30dB at 3.58MHz
   w/comb: +/-1dB at 50Hz tttto 7MHz

	(w/o Notch)	(w/Notch)	(w/Comb)
*2T pulse to base line	<+/-1%	<+/-2%	<+/-1%
*2T pulse to Bar	<+/-1%	<+/-2%	<+/-1%
*T step	<1%	<1%	<1%
*Distortion	<1%	<1%	<1%
*Square wave response	<1%	<1%	<1%

 ●Linearity Differential Gain less than 2%
 ●Black level varies: less than 1% (APL 10% ~ 90%)
 ●Color temperature stabilities: less than 1% for 500hours,
  +10'C ~ +40'C
 ●Aperature correction
  *Correction characteristics
  Waveform of overshoot of 2T pulse appears
  symmetrically with TRAP ON.
  *Frequency response

60Hz to 100KHz:	less than +/-1dB
1MHz:	less than +2dB
2.5MHz	less than +6dB
3.58MHz(NTSC):	less than –15dB
4.43MHz(PAL):	less than –15dB

 ●Noise (at each RGB in active scan period)

Coherent Noise	less than –46dB
Hum Noise	less than –55dB
Other	less than –55dB

20-Series Color Monitors

Specifications

Color Signal System	w/COMB	w/TRAP
●Chrominance Suppression in	>24dB	>30dB
●Luminance	at 4.43 or 3.58MHz	at 4.43 or 3.58MHz
●Luminance Suppression in	>20dB	----------
●Chrominance	at 4.43 or 3.58MHz	at 4.43 or 3.58MHz
●Chroma/Luma Delay	<20nsec.	<20nsec.

●Chroma Signal Response
     NTSC 2.3MHz to 4.9MHz: +1, -3dB
     (reference 3.58MHz)
     PAL-B 3.1MHz to 5.7MHz: +1, -3dB
     (reference 4.43MHz)

●Demodulator Axis
     R-Y VS B-Y 90 degree

●Oscillator Performance
     Subcarrier Lock-in
     +/-200Hz (NTSC/PAL-M)
     +/-300Hz (PAL-B)

●Phase Error   Less than 2 degree for each of following individual conditions:
     a)Burst frequency: +/-10Hz
     b)Burst level change: +6dB, -12dB
     c)Ambient temperature change by +10'C
     d)Sync-blanking within FCC requirement

●Color Killer   Automatic operation when burst level is less than 5 +/-1 IRE.

●Adjustments   *Chroma amplitude: +/-6dB
     *Subcarrier phase: +/-15 degree

Raster + Deflection

●Scan   *Normal scan
     Aspect ratio 4:3 with blanked raster 1%
     *Under scan
     Aspect ratio 4:3 approx. –7.5%
     (adjustable 90% of normal scan)
     *Over scan
     105% of normal scan

●Stability of Raster Size
     1% of picture height 0 ~ 100% APL at 35Ft-L reference

●Linearity H + V line
     0.5% of picture height

●Geometry Entire Screen
     0.5% of picture center

●AFC Time Constant
     Normal: 2msec
     Fast: 0.5msec
     Slow: 7msec

●Retrace Time	Horizontal:	0.9usec.
	Vertical:	0.8msec.

●High Voltage	*Tolerance: TM14-20RH/RP	25kV+/-0.5kV
	TM20-20RH/RP	25kV+/-0.5kV

     *Regulation: within +/-1% at 0 to 450uA

●Convergence   Center: <0.3mm(within circle of 80% of picture height)
     Corners: <0.5mm(outside area of picture center)

Functions

●Adaptive Comb Decoder (option)
●Safe Title Generator
     (100,95,90,85,80%, 100+90+80%, 5 CROSS HATCH, 10 CROSS HATCH selectable)
●Auto Setup   (with an optional probe)
●Infrared Remote Control (with an optional remote control box)
●Test Signals   *Cross Hatch, * Flat Field(50%), *Window (100%),
     *10step stair signal with plugs as standard,
     *Character

●Video A/B Split (reference & variable vertical position)
●Color/Mono Split (reference & variable vertical position)
●Beam Feedback System
●Menu Assist   *Contrast, Brightness, Chroma, Hue, G. Gain,
     B. Gain, R.BLG, G.BLG, B.BLG, Aperture Level,
     Height, Width, V.Cent, H.Cent, Rotation, F.Focus,
     H.Phase
     *Safe Title Setup
     *Split Setup
     *System Setup
     Decoder Select (NTSC/PAL-B/PAL-M/SECAM)
     Test Signal ON/OFF
     *Mode Setup
     User Display ON/OFF
     Aux RGB/Y,R-Y,B-Y
     CH C / Y/C
     Level Display ON/OFF
     Control Lock Setup

Front Control

●Outside of Drawer *Power ON/OFF
     *Degauss ON
     *Color/Mono
     *Sync INT/EXT
     *Video Select (A/B/C/Aux/Digital/Test/A-B split)
     *Delay (H Delay, V Delay, HV Delay)
     *Scan (UNDER. Normal, OVER)
     *Aperture ON/OFF
     *Screens (R/G/B ON/OFF)
     *Safe Title ON/OFF
     *Contrast, Brightness, Chroma, Hue Preset/Manual

●Inside of Drawer *Setup ON/OFF
     *AUTO/FORCED COLOR
     *AFC Normal/Fast/Slow
     *Residual Subcarrier
     *File Control
     *Rotary Encoder
     *Preset Change
          Contrast, Brightness, Chroma, Hue,
          RGB Background, GB Gain,, Rotation,
          Aperture Level, Fine Focus, Height,
          Width, H Center, V Center, H Phase

Dimensions   TM14-20RH/RP:
     450(W) x 265(H) x 515(D) mm
     17.72(W) x 10.43(H) x 20.28(D) inches
     TM20-20RH/RP:
     450(W) x 399(H) x 515(D) mm
     17.72(W) x 15.71(H) x 20.28(D) inches

Weight   TM14-20RH/RP: 26kg (57.3 lbs) approx.
     TM20-20RH/RP: 38kg (83.8 lbs) approx.

Design and specifications are subject to change without notice.