
FS-404 SPECIFICATIONS

CRT

Type : 6-inch rectangular with integral graticule,
P31 phosphor.

Display Area : 8 x 10 div (i div = 1 cm).

Accelerating Voltage : 2 kV.

Phosphor : P31.

Trace Rotation : Electrical, front panel adjustable.

VERTICAL AMPLIFIERS (CH 1 and CH 2)

Sensitivity : 5 mV/div to 5 V/div, 1 mv/div to 1 V/div
at X5 MAG.

Attenuator : 10 calibrated steps in 1-2-5 sequence.
Variable control provides fully adjustable
sensitivity between steps; range 1/1 to at
least 1/3.

Accuracy : $\pm 3\%$, 5 mV to 5 V/div; 5%, at X5 MAG.

Input Resistance : $1 \text{ M}\Omega \pm 2\%$.

Input Capacitance : $25 \text{ pF} \pm 10 \text{ pF}$

Frequency Response :

5 mV/div to 5 V/div:

DC to 40 MHz (-3 dB).

X5 MAG :

DC to 10 MHz (-3 dB).

Rise Time :

8.8 nS; 35 nS at X5 MAG.

Overshoot : Less than 5%.

Operating Modes :

CH 1 : CH 1, single trace.

CH 2 : CH 2, single trace.

DUAL : CH 1 and CH 2, dual trace.

Alternate or Chop selectable at
any sweep rate.

ADD : Algebraic sum of CH 1+ CH 2.

Chop Frequency : Approximately 500KHz.

Polarity Reversal : CH 2 invert.

Maximum Input Voltage : 400 V (dc + ac peak).

HORIZONTAL AMPLIFIER

(Input through channel 1 input)

X-Y mode :

CH 1=X axis.

CH 2 = Y axis.

Sensitivity : Same as vertical channel 2.

Input Impedance : Same as vertical channel 2.

Frequency Response:

DC to 1 MHz(-3 dB).

X-Y Phase Difference : 3° or less at 50 kHz.

Maximum Input Voltage : Same as vertical channel 1.

SWEEP SYSTEM

Operating Modes :

Main Time Base, X-Y Operating.

Main Time Base : 0.1 μ S/div to 2.0 S/div in 1 -2-5
sequence, 23 steps. Variable control provides fully
adjustable sweep time between steps.

Accuracy : $\pm 3\%$, except $\pm 6\%$ on 0.2 S/div and $\pm 20\%$
on 0.1 μ S/div.

Sweep Magnification : X10 $\pm 10\%$.

Holdoff : Continuously adjustable for main time base f
NORM to 5 times normal.

TRIGGERING

Trigger Modes :

AUTO (free run), NORM, TV-V, TV-H.

Trigger Source :

CH 1, CH 2, Alternate, EXT, LINE.

Slope :

(+)or(-)

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Trigger Coupling :

- AUTO : Sweep free-runs in absence of suitable trigger signal.
- NORM : Sweep triggered only by adequate trigger signal.
- TV-V : Video vertical sync pulses are selected. Also usable for high frequency reject.
- TV-H : Video horizontal sync pulses are selected. Also usable for low frequency reject.

Trigger Sensitivity :

- AUTO : 1.5 div (internal)
>0.5 Vp-p (external)
100 Hz -40 MHz
- NORM : 1.5 div (internal)
20.5 Vp-p (external)
100 Hz -40 MHz
- TV-V : 1.0 div (internal)
>0.5 Vp-p (external)
DC -1KHz
- TV-H : 1.0 div (internal)
>0.5 Vp-p (external)
1KHz-100 KHz

Maximum External Trigger Voltage :

300 V (dc + ac peak).

FUNCTION GENERATOR

GENERAL SPECIFICATIONS :

- Frequency : 0.5Hz ~ 5MHz in 6 steps,
controlled by one push switch.
- Output Waveform : Sine, Square, Triangle,
3 waveforms total.
- Stability : 0.1% - 15minutes after power-on.
0.2% - 24hrs after power-on.
- Limits of Operation : 0°C~40°C, 10~80%R.H.
- Storage Environment : -20°C~70°C, 0~90%R.H.

TRIANGLE WAVE :

- Frequency : 0.5Hz - 5MHz.
- Symmetry : 50% (rise wave) to 50% (fall wave),
< 2%, 1Hz ~ 100KHz.
- Linearity : < 1%, 1Hz ~ 100KHz.

SINE WAVE :

- Frequency : 0.5Hz ~ 5MHz.
- Distortion : < 2%, 1Hz ~ 100KHz.
- Harmonic Ratio : < 30dB, 100KHz ~ 5MHz.
- Frequency Response : < 0.1dB up to 100KHz.
< 1dB 100KHz to 5MHz.

SQUARE WAVE :

- Frequency : 0.5Hz ~ 5MHz.
- Symmetry : 50% (positive half) to 50%
(negative half), < 2%,
1Hz ~ 100KHz.
- Rise Time : < 60ns.

MAIN OUTPUT :

- Output Impedance : 50Ω, < 2% Accuracy.
- Max. Output : 20 Vp-p (No load), ±1V?
10 Vp-p (50Ω load), ±0.5V ?
- Min. Output : 0.1Vp-p (No load) and 0.05V
(50Ω load)
- Attenuator : one -20dB switch, < 2% Accuracy.

SYNCHRONOUS OUTPUT :

- Output Impedance : 50Ω, < 2% Accuracy.
- Output Level : TTL level, > 3Vp-p fixed amplitude.
- Fanout : > 20.
- Rise Time : < 60ns(no load).

OTHER SPECIFICATIONS

Cal/Probe Compensation Voltage : 2 V p-p +3% square wave, 1KHz nominal.

CH 2 (Y) Output : 50 mV/div (nominal into 50 ohm load).

Output Impedance : Approximately 50 ohms.

Frequency Response : 20 Hz to 30 MHz, -3 dB.

Power Requirement : 10~130 VAC or 200-260 VAC, 50/60 Hz, 50 watts.

Dimensions (H x W x D) :

5.2" x 12.8" x 15.7"

(132 x 324 x 398 mm).

Weight : 18.7 lbs (8.5 kg).

Environment :

Within Specified Accuracy : +10} to +35} C, 10-80%

Full Operation : 0} to +50} C, 10-80% relative humidity.

Storage : -30} to +70} C, 10-90% relative humidity.

ACCESSORIES SUPPLIED :

Two Switchable X1/X10 Probes.

Instruction Manual.

AC Line Cord.

One cable (BNC to BNC).