SPECIFICATIONS

Cathode Ray Tube

Type:
140 CGB 31

Acceleration voltage:
6 kV

Scale:
8 div × 10 div (1 div ≒ 9.5 mm)

Vertical Axis (CH1 and CH2)

Deflection Factor:
2 mV/div – 5 V/div ± 3%

Attenuator:
5 mV/div to 5 V/div in 1-2-5 sequence. Variable between ranges, ±5% on all ranges.

Input impedance:
1 MΩ ± 2%
Approx. 23 pF

Frequency response:

DC	DC – 30 MHz (within –3dB) at 5 mV/-div –0.2V/div [DC – 20 MHz (within –3dB) at PULL 2 mV/div]
AC	5 Hz – 30 MHz (within –3dB) at 5 mV/-div –0.2V/div [5 Hz – 20 MHz (within –3dB) at PULL 2 mV/div]

Risetime:
11.7 nsec (30 MHz) or less, 17.5 nsec (20 MHz) or less.

Overshoot:
3% or less (100 kHz square wave)

Crosstalk:
Better than –60 dB (alternate), better than –40 dB (chop).

Operating modes:

CH1	CH1 only
CH2	CH2 only
DUAL	Dual trace
ADD	Single trace algebraic sum of CH1 and CH2 (single trace algebraic difference of CH1 and CH2 when CH2 signal is inverted.)

Dual-trace Changeover
TRIG SOURCE in ALT postion: Alternate trace in all SWEEP TIME/DIV ranges.
TRIG SOURCE in any position other than ALT: Trace chopped at PULL CHOP.

CHOP frequency:
Approx. 200 kHz

CH2 polarity:
Normal or inverted

Maximum input voltage:
600 Vp-p or 300V (DC + AC peak)

Maximum undistorted amplitued:
More than 8 div (DC – 30 MHz)

Signal delay time:
Approx 15 nsec. (on CRT screen)

Horizontal Axis (Horizontal input thru CH2 input) [X5 MAG not inclued]

Deflection factor:
Same as vertical (CH2)

Input impedance:
Same as vertical (CH2)

Frequency response:

DC	DC – 2 MHz (within –3 dB)
AC	5 Hz – 2 MHz (within –3 dB)

X-Y operation:
With SWEEP TIME/DIV switch in X-Y position, the CH1 input becomes the Y-axis input and the CH2 input becomes the X-axis input. The X-Y position control become the horizontal position control.

X-Y phase difference:
3° or less at 100 kHz

Sweep Circuit (Common to CH1 and CH2)

Sweep system:
NORM: Triggered sweep.
AUTO: Automatic sweep. Sweep is obtained without input signal.
SINGLE: Single sweep.

Sweep time:
0.2 μs/div to 0.5 s/div in 20 calibrated ranges, in 1-2-5 sequence. Variable between ranges, Sweep time accuracy; ±3%.

Sweep magnification:
Obtained by enlarging the above sweep 5 times (±10%) from center.

Linearity:
±3% (±10% for 0.5 μs and 0.2 μs/div ranges with X5 MAG)

Triggering Source:

Internal:

ALT	Triggered by CH1 or CH2 vertical input signal.
CH1	Triggered by CH1 input signal.
CH2	Triggered by CH2 input signal.
LINE	Triggered by power line frequency.

External

EXT	Triggered by an external signal applied to EXT TRIG jack.

Maximum input voltage:
50V (DC + AC peak)

Type:
Normal (NORM), automatic (FIX).
In automatic mode, the sweep triggers automatically without an input signal.

Coupling:
AC, LFREJ, HFREJ, and DC

Sensitivity (Based on sine wave):

Coupling	Bandwidth (Hz)	Minimum Sync Voltage	
		INT (div)	EXT (Vp-p)
AC	20 ~ 25M 10 ~ 30M	0.5 1	1 5
DC	DC ~ 25M DC ~ 30M	0.5 1	1 5
FIX	40 ~ 20M 20 ~ 25M	0.5 1	2 5
LF REJ HF REJ	Attenuate below 10 kHz. Attenuate above 100 kHz.		

Video Sync:
FRAME — LINE switch permits triggering from horizontal (LINE) or vertical (FRAME) sync pulses of composite video signal.

HOLDOFF:
Continuously variable from zero (NORM) to more than 10 times (MAX).

Delay Sweep
Delay time:
1 μs to 100 ms in 5 ranges with vernier adjustment.

ALT:
With ALT triggering source, channel 1 or channel 2 sweep can be independently delayed.

Jitter:
5.000: 1

Intensity modulation:
INTEN switch allows portion of sweep after delay to be intensified.

Calibration voltage:
Square wave, positive polarity
0.5V ±1%, reference level 0V
1 kHz ±3%

Intensity Modulation
Input voltage:
More than +2V (TTL compatible)

Input impedance:
10 kΩ

Bandwidth:
DC — 5 MHz

Maximum input voltage:
50V (DC + AC peak)

Trace rotation:
Trace angle adjustable on front panel

Power Requirements
Power supply voltage:
AC 100/120/220/240V ±10%, 50/60 Hz

Power consumption:
Approx. 30W

Dimensions
Width: 260 mm (277 mm)
Height: 190 mm (204 mm)
Depth: 375 mm (440 mm)
Figures in ( ) show maxomum size.

Weight:
Approx. 8.6 kg

Accessories
Probe (PC — 22) ..... 2 pieces
Attenuation 1/10
Input impedance 10 MΩ, less than 18 pF
Replacement fuse
0.7A 2
0.3A 2
Instruction manual ..... 1 copy