## Specifications

| Model | | OS-3020D | OS-3040D | OS-3060D |
|---|---|---|---|---|
| CRT | **Configuration and Useful Screen** | 6-inch rectangular screen with internal graticule: 8 X 10 Div (1 div = 1 cm) | | |
| | **Accelerating Potential** | +1.9 kV approx. | +11.5 kV approx. | +11.5 kV approx. |
| | **Phosphor** | P31 (Standard) | | |
| | **Focussing** | possible with auto focus correction circuit | | |
| | **Trace Rotation** | Provided | | |
| | **Scale Illumination** | Variable | | |
| | **Intensity Control** | Provided | | |
| Z-Axis Input (Intensity Modulation) | **Input Signal** | Positive going signal decreases intensity (+5 Vp-p or more signal causes noticeable modulation at normal intensity settings.) | | |
| | **Bandwidth** | DC -2MHz (-3dB) | | DC -3.5MHz (-3dB) |
| | Coupling | DC | | |
| | **Input Impedance** | 20kΩ - 30kΩ typical | | |
| | **Maximum Input Voltage** | 30V (DC + peak AC) | | |
| | **Bandwidth (-3dB)** | (DC Coupled)<br>DC to 20MHz normal<br>DC to 7MHz magnified | DC to 40MHz normal<br>DC to 7MHz magnified | DC to 60MHz normal<br>DC to 10MHz magnified |
| | | (AC Coupled)<br>10Hz to 20MHz normal<br>10Hz to 7MHz magnified | 10Hz to 40MHz normal<br>10Hz to 7MHz magnified | 10Hz to 60MHz normal<br>10Hz to 10MHz magnified |

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|---|---|---|---|---|
| **Vertical Deflection** | **Modes** | CH1, CH2, ADD, DUAL (CHOP: Time/Div. switch - 0.2s to 5ms. ALT: Time/Div. switch - 2ms to 0.2µs) | | CH1, CH2, ADD, DUAL (CHOP: Time/Div. switch - 0.2s to 5ms. ALT: Time/Div. switch 2ms to 0.1µs) |
| | **Deflection Factor** | 5mV/Div to 5V/Div in 10 calibrated steps of a 1-2-5 sequence. Continuously variable between steps at least 1: 2.5 X5 MAG: 1mV/Div to 1V/Div in 10 calibrated steps. | | |
| | **Accuracy** | normal: ±3%, magnified: ±5% | | |
| | **Input Impedance** | approx. 1MΩ in parallel with 25pF ±3pF | | |
| | **Maximum Input Voltage** | Direct: 250V (DC + peak AC), (with probe: refer to probe specification) | | |
| | **Input Coupling** | DC - GND - AC | | |
| | **Rise Time** | 17.5 ns or less (50 ns or less: x5) | 8.8 ns or less (50 ns or less: x5) | 5.8 ns or less (35 ns or less: x5) |
| | **CH 1 Out** | 20 mV/Div into 50Ω: DC to 10MHz (-3dB) | | |
| | **Polarity Inversion** | CH2 only | | |
| | **Signal Delay** | None | delay cable supplied | |
| | **Display Modes** | A, A int, B, B TRIG' D, X-Y | | |
| | **Time Base A** | 0.2µs/Div to 0.2s/Div in 19 calibrated steps, 1-2-5 sequence, uncalibrated continuous control between steps at least 1:2.5 | | 0.1µs/Div to 0.2s/Div in 20 calibrated steps, 1-2-5 sequence, uncalibrated continuous control between steps at least 1:2.5 |
| | **Hold-off Time** | variable with the hold off control | | |

<table>
<tr><td rowspan="5">Horizontal Deflection</td><td>Time Base B</td><td colspan="2">0.2μs/Div to 20μs/Div in 7 calibrated steps 1-2-5 sequence</td><td>0.1μs/Div to 0.2s/Div in 20 calibrated steps, 1-2-5 sequence, uncalibrated continuous control between steps at least 1:2.5</td></tr>
<tr><td>Delayed Sweep</td><td colspan="3">1 Div, or less to 10 Div, or more</td></tr>
<tr><td>Delay Time Jitter</td><td colspan="3">better than 1:20,000</td></tr>
<tr><td>Sweep Magnification</td><td colspan="2">10 tims (maximum sweep rate: 20ns/Div)<br>Note: 50 ns/Div, 20 ns/Div of A TIME BASE are uncalibrated.</td><td>10 tims (maximum sweep rate: 10ns/Div)</td></tr>
<tr><td>Accuracy</td><td colspan="3">±3%, additional error for Magnifier ±2%</td></tr>
<tr><td rowspan="7">Trigger System</td><td>Modes</td><td colspan="3">auto, norm, TV-V, TV-H</td></tr>
<tr><td>Source</td><td colspan="3">CH1, CH2, LINE, EXT</td></tr>
<tr><td>Coupling</td><td colspan="3">AC</td></tr>
<tr><td>Slope</td><td colspan="3">+ or -</td></tr>
<tr><td>Sensitivity and Frequency (ATUO, NORM)</td><td colspan="3"><table>
<tr><td></td><td>20Hz-2MHz</td><td>2MHz-20MHz</td><td></td><td>20Hz-2MHz</td><td>2MHz-40MHz</td><td></td><td>20Hz-2MHz</td><td>2MHz-60MHz</td></tr>
<tr><td>INT</td><td>0.5 Div</td><td>1.5 Div</td><td>INT</td><td>0.5 Div</td><td>1.5 Div</td><td>INT</td><td>0.5 Div</td><td>1.5 Div</td></tr>
<tr><td>EXT</td><td>0.2 Vp-p</td><td>0.8 Vp-p</td><td>EXT</td><td>0.2 Vp-p</td><td>0.8 Vp-p</td><td>EXT</td><td>0.15 Vp-p</td><td>0.3 Vp-p</td></tr>
</table></td></tr>
<tr><td>TV-V, TV-H</td><td colspan="3">at least 1 Div or 1.0Vp-p Composite Sync.</td></tr>
<tr><td>External Trigger Input Impedance</td><td colspan="3">1MΩ</td></tr>
<tr><td>Max. Input Voltage</td><td colspan="3">250V (DC+peak AC)</td></tr>
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|---|---|---|---|
| X-Y Operation | X-Axis | (same as CH1 except for the following)<br>Deflection factor: same as that of CH1<br>Accuracy: ±5%<br>Frequency Response: DC to 500kHz (-3dB) | |
| | Y-Axis | same as CH2 | |
| | X-Y Phase Difference | 3° or less (at DC to 50MHz) | |
| Readout Function | Cursor Readout Function | Voltage reference ΔV: Δ-REF, Time reference ΔT: Δ-REF, Frequency reference 1/ΔT:Δ-REF | |
| | Panel Setting Displays | Vertical axis CH1, CH2: V/Div, UNCAL, MAG (converted value)<br>Note: displayed when the vertical mode is CH1, CH2, DUAL, ADD not displayed when the B mode<br>Horizontal axis: S/DIV, UNCAL, MAG (converted value) | |
| | Effective Cursor Range from Center Graticule | Vertical: within ±3Div<br>Horizontal: within ±4Div | |
| | Resolution | 1/25 Div | |
| | Display Memory | 1000 words/CH | |
| | Save Memory | 1000 words/CH X 2 | |
| | Acquisition Memory | 5μs/Div ~ 20s/Div: 2000 words/CH<br>0.2μs/Div ~ 20μs/Div: 1000 words/CH | 5μs/Div ~ 20s/Div: 2000 words/CH<br>0.1μs/Div ~ 2μs/Div: 1000 words/CH |
| | Vertical Resolution | 25 Point/div | |
| | Horizontal Resolution | 100 Point/div | |

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|---|---|---|---|
| | **Sweep Time** | 0.2μs/Div/20s/Div repetitive signal: 0.2 μs/Div~2μs/Div<br>Roll mode: 0.5s/Div~20s/Div<br>ALT: 0.2μs/Div~0.5ms/Div<br>CHOP: 1ms/Div~20s/Div | 0.1μs/Div~20s/Div repetitive signal: 0.1μs/Div~2μs/Div<br>Roll mode:0.5s/Div~20s/Div<br>ALT: 0.1μs/Div~0.5ms/Div<br>CHOP: 1ms/Div~20s/Div |
| | **Readout Function** | (Panel setting display)<br>V/Div, uncal, MAG, S/Div, uncal, MAG<br>X-Y, Trigger point, number of averaging roll mode, smoothing, interpolation method, save memory information, probe setting (cursor readout)<br>Voltage difference ΔV: Δ-Ref, Time difference Δ-T: Δ-REf, Frequency 1/ΔT:Δ-Ref, Pre-Trigger TRG:Δ | |
| **Calibration** | **Probe Adjustment** | approx. 1kHz frequency, 0.5V (±3%)<br>square wave duty ratio: 50% | |
| **Power Supply** | **Voltage Range/ Frequency** | 100, 120, 220, 240, VAC ± 10%, 50/60Hz | |
| | **Power Consumption** | approx. 65W | |
| **Physical Characteristics** | **Weight** | approx. 8.5kg | |
| | **Size** | 320 mm (W) X 140 mm (H) X 430 mm (L) | |
| **ENVIRONMENTAL CHARACTERISTIC** | **Temperature Range for Rated Operation** | +10°C to +35°C (+50°F to +95°F) | |
| | **Max. Ambient Operating Temperature** | 0°C to 40°C (+32°F to +104°F) | |
| | **Max. Storage Temperature** | -20°C to 70°C (-4°F to +158°F) | |
| | **Humidity Range for Rated** | 45% to 85% RH | |