

[Astable Multivibrator](#)

<https://taufikh212027.blogspot.com/2022/03/bahan-presentasi-matakuliah-oleh-taufik.html>

[\[KEMBALI KE MENU SEBELUMNYA\]](#)

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KEMBALI KE MENU SEBELUMNYA

[1. Tujuan](#)

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1. Tujuan</div>

<div class="MsoNormal" style="line-height: 150%; text-align: justify;"><div style="text-align: justify;"> a.Dapat memahami apa itu Astable Multivibrator</div> b Dapat memahami dan mensimulasikan rangkaian Astable Multivibrator</div><div style="text-align: justify;">
</div>

<div class="MsoNormal">

2. Alat dan Bahan</div><div class="MsoNormal">

2.1 Alat

Osiloskop

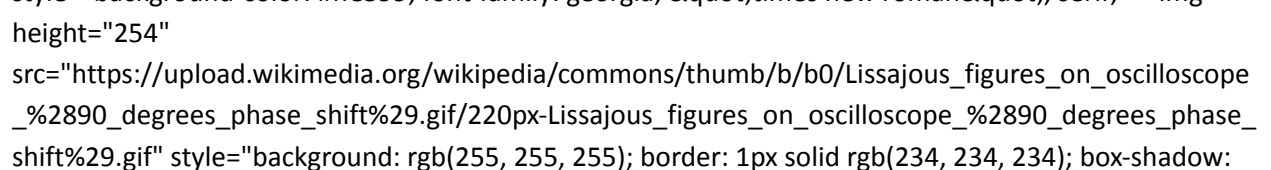
adalah alat ukur elektronika yang berfungsi memproyeksikan bentuk sinyal listrik agar dapat dilihat dan dipelajari.

Osiloskop dilengkapi dengan tabung sinar katode.

Peranti pemancar elektron memproyeksikan sorotan elektron ke layar tabung sinar katode.

Sorotan elektron membekas pada layar.

Suatu rangkaian khusus dalam osiloskop menyebabkan sorotan bergerak berulang-ulang dari kiri ke kanan.



Spesifikasi:

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padding: 5px; position: relative;" width="320" /></div></div><div class="MsoNormal"><span
style="font-size: medium;"><span style="line-height:
107%;"> <span style="background-color: white; font-family:
times;">Baterai</div><div
style="background-color: white; text-align: justify;"><span
lang="id">
</div><div style="background-color: white; text-align: justify;"><span
style="font-family: times;">Fungsi: Meyediakan atau
menyuplai energilistrik<span
style="color: #202124; text-align: left;"> bagi alat elektronik tanpa harus tersambung
kelistrik</div><div
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white; text-align: justify;"><span style="color: #202124; text-align:
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</div><div class="separator" style="clear: both;">Spesifikasi:</div><div class="separator" style="clear:
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</div><div class="separator" style="clear: both; text-align: center;"><ul
style="background-color: black; color: white; font-family: times; line-height: 1.4; margin: 0.5em 0px;
padding: 0px 2.5em; text-align: start;"><li style="margin: 0px 0px 0.25em; padding: 0px;">Input voltage:
ac 100~240v / dc 10~30v<li style="margin: 0px 0px 0.25em; padding: 0px;">Output voltage: dc
1~35v<li style="margin: 0px 0px 0.25em; padding: 0px;">Max. Input current: dc 14a<li
style="margin: 0px 0px 0.25em; padding: 0px;">Charging current: 0.1~10a<li style="margin: 0px 0px
0.25em; padding: 0px;">Discharging current: 0.1~1.0a<li style="margin: 0px 0px 0.25em; padding:
0px;">Balance current: 1.5a/cell max<li style="margin: 0px 0px 0.25em; padding: 0px;">Max.
Discharging power: 15w<li style="margin: 0px 0px 0.25em; padding: 0px;">Max. Charging power: ac
100w / dc 250w<li style="margin: 0px 0px 0.25em; padding: 0px;">Jenis batre yg didukung: life,
lilon, lipo 1~6s, lihv 1-6s, pb 1-12s, nimh, cd 1-16s<li style="margin: 0px 0px 0.25em; padding:
0px;">Ukuran: 126x115x49mm<li style="margin: 0px 0px 0.25em; padding: 0px;">Berat:
460g</div></div>

<div class="MsoNormal">

2.2 Bahan
</div>

<div class="MsoNormal" style="line-height: 150%; text-align: justify;">

a. Resistor<o:p></o:p></div>

<div class="MsoNormal" style="line-height: 150%; text-align: justify; text-indent: 36pt;">

</div>

<div class="MsoNormal" style="line-height: 150%; text-align: justify; text-indent: 36pt;">

</div>

<div class="separator" style="clear: both; text-align: center;">

</div>

<o:p></o:p>

<div class="MsoNormal" style="line-height: 150%; margin-bottom: 0cm;">

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h. OP-AMP 741<o:p></o:p></div>

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Operational

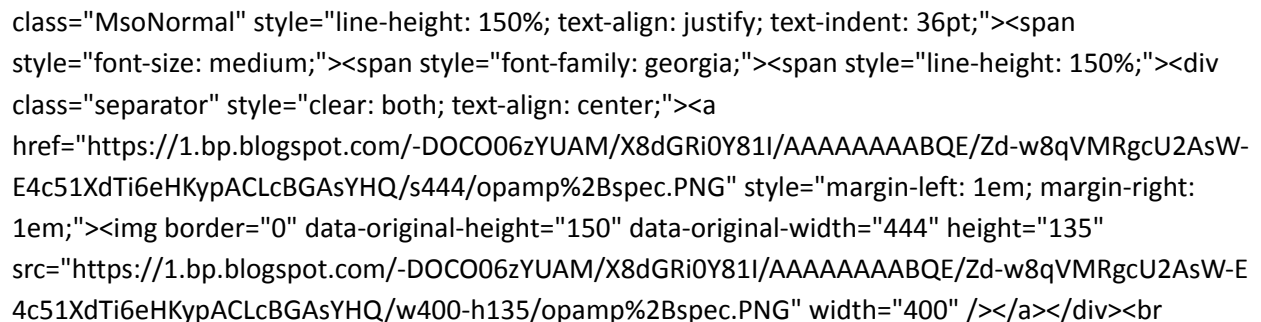
Amplifier atau lebih dikenal dengan istilah Op-Amp adalah salah satu dari

bentuk IC Linear yang berfungsi sebagai Penguat Sinyal listrik. Sebuah Op-Amp

terdiri dari beberapa Transistor, Dioda, Resistor dan Kapasitor yang

terinterkoneksi dan terintegrasi sehingga memungkinkan untuk menghasilkan

Gain (penguatan) yang tinggi pada rentang frekuensi yang luas.





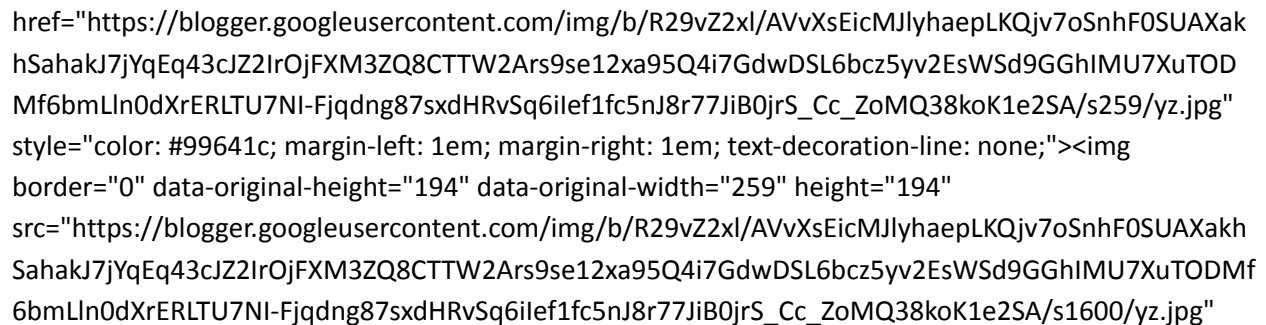


Gain (penguatan) yang tinggi pada rentang frekuensi yang luas.

terdiri dari beberapa Transistor, Dioda, Resistor dan Kapasitor yang terinterkoneksi dan terintegrasi sehingga memungkinkan untuk menghasilkan

Kapasitor

Kondensator atau sering disebut sebagai **kapasitor** adalah suatu alat yang dapat menyimpan energi di dalam medan listrik, dengan cara mengumpulkan ketidakseimbangan internal dari muatan listrik.



Kapasitor adalah komponen elektronika pasif yang dapat menyimpan muatan listrik dalam waktu sementara.

Cara menghitung nilai kapasitor :

- Masukan 2 angka pertama langsung untuk nilai kapasitor.
- Angka ke-3 berfungsi sebagai perpangkatan (10^n) nilai kapasitor.
- Satuan kapasitor dalam piko farad.
- Huruf terakhir menyatakan nilai toleransi dari kapasitor

Daftar nilai toleransi kapasitor :

B = 0.10pF
C = 0.25pF
D = 0.5pF
E = 0.5%
F = 1%
G = 2%
H = 3%
J =

5%
K = 10%
M = 20%
Z = + 80% dan -20%</p><div>
</div><div>
</div></div></div></div></div></div><div style="background-color: white; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px;">
</div>Spesifikasi:</div><div style="background-color: white; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px;">
<div class="separator" style="clear: both; text-align: center;"></div><div class="separator" style="clear: both; text-align: center;">
</div><div class="separator" style="clear: both; text-align: center;">
</div><div class="separator" style="clear: both; text-align: center;">
</div><div style="font-family: "Times New Roman"; font-size: 15.4px; text-align: left;">d. Ground</div><div style="font-family: "Times New Roman"; font-size: 15.4px; text-align: left;"> Ground adalah titik yang dianggap sebagai titik kembalinya arus listrik arus searah atau titik kembalinya sinyal bolak balik atau titik patokan (referensi) dari berbagai titik tegangan dan sinyal listrik di dalam rangkaian elektronika.</div></div></div></div><div class="MsoNormal" style="text-align: justify;"><div class="separator" style="clear: both; text-align: center;">
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</div><div class="separator" style="background-color: white; clear: both; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px;">a

[</div><div class="separator" style="background-color: white; clear: both; font-family: Georgia, Utopia, "Palatino Linotype", Palatino, serif; font-size: 15.4px;">
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style="line-height: 107%;"> <span style="line-height:
107%;"><o:p></o:p></div><span
style="font-family: georgia;">

<div class="MsoNormal"><span style="font-family:
georgia;"> Resistor</div><
div class="MsoNormal"><span style="font-family:
georgia;"><span style="cursor:
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line-height: 32px;"> Resistor

adalah komponen elektronika pasif yang memiliki nilai resistansi atau

hambatan tertentu yang berfungsi untuk membatasi dan mengatur arus

listrik dalam suatu rangkaian elektronika. Satuan Resistor adalah Ohm

(simbol: Ω) yang merupakan satuan SI untuk resistansi listrik. Resistor

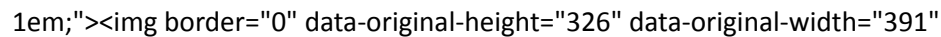
mempunyai nilai resistansi (tahanan) tertentu yang dapat memproduksi

tegangan listrik di antara kedua pin dimana nilai tegangan terhadap

resistansi tersebut berbanding lurus dengan arus yang mengalir,

berdasarkan persamaan hukum Ohm ($V = I.R$).

<https://1.bp.blogspot.com/-Aulqg72xCNs/X8dlcv7BpGI/AAAAAAAAABQw/tvGnpgozTHc4RIRx4SJ71tanRvwS9XUcgCLcBGAsYHQ/s391/Simbol-Resistor.jpg>



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Cara menghitung nilai

resistansi resistor dengan gelang warna:

1. Masukkan angka langsung dari kode warna gelang pertama.

2. Masukkan angka langsung dari kode warna gelang kedua.

3. Masukkan angka langsung dari kode warna gelang ketiga.

mso-ansi-language: EN-US;">4. Masukkan jumlah nol dari kode warna gelang ke-4 atau pangkatkan angka

tersebut dengan $10 (10^n)$, ini merupakan nilai toleransi dari

resistor.

[](https://1.bp.blogspot.com/-vu1rD3Ts9mk/X8dIoEI2TUI/AAAAAAAAABQ0/mXk0-I2hCiEXV2sWw0YvHUqKfwdPxxhU9QCLcBGAsYHQ/s500/Kode-Warna-Resistor.gif)

OpAmp 741

Op-Amp adalah salah satu dari bentuk IC Linear yang berfungsi sebagai

Penguat Sinyal listrik. Sebuah Op-Amp terdiri dari beberapa Transistor,

Dioda, Resistor dan Kapasitor yang terinterkoneksi dan terintegrasi

sehingga memungkinkannya untuk menghasilkan Gain (penguatan) yang tinggi

pada rentang frekuensi yang

luas.

'yes';">Simbol

<p><b align="justify" class="MsoNormal" style="line-height: 150%; margin-bottom: 0,0000pt; margin-left: 36,0000pt; margin-right: 0,0000pt; margin-top: 0,0000pt; mso-pagination: widow-orphan; text-align: justify; text-indent: 0,0000pt; text-justify: inter-ideograph;"></p><div class="separator" style="clear: both; text-align: center;"></div>

<p class="p" style="line-height: 150%; mso-pagination: widow-orphan;">Karakteristik IC OpAmp</p><p class="MsoNormal" style="line-height: 150%; margin-bottom: 5,0000pt; margin-left: 36,0000pt; margin-top: 5,0000pt; mso-list: l0 level1 lfo1; mso-margin-bottom-alt: auto; mso-margin-top-alt: auto; mso-pagination: widow-orphan; text-indent: -18,0000pt;"> Penguatan Tegangan Open-loop atau Av = ∞ (tak ter hingga)</p><p class="MsoNormal" style="line-height: 150%; margin-bottom: 5,0000pt; margin-left: 36,0000pt; margin-top: 5,0000pt; mso-list: l0 level1 lfo1; mso-margin-bottom-alt: auto; mso-margin-top-alt: auto; mso-pagination: widow-orphan; text-indent: -18,0000pt;"> Tegangan Offset Keluaran (Output Offset Voltage) atau Voo = 0 (nol)</p><p class="MsoNormal" style="line-height: 150%; margin-bottom: 5,0000pt; margin-left: 36,0000pt; margin-top: 5,0000pt; mso-list: l0 level1 lfo1; mso-margin-bottom-alt: auto; mso-margin-top-alt: auto; mso-pagination: widow-orphan; text-indent: -18,0000pt;"> Impedansi Masukan (Input Impedance) atau Zin= ∞ (tak ter hingga)</p><p class="MsoNormal" style="line-height: 150%; margin-bottom: 5,0000pt; margin-left: 36,0000pt; margin-top: 5,0000pt; mso-list: l0 level1 lfo1; mso-margin-bottom-alt: auto; mso-margin-top-alt: auto; mso-pagination: widow-orphan; text-indent: -18,0000pt;"> <span style="font-size: 12,0000pt; mso-spacerun:

'yes';">Impedansi Output (Output Impedance) atau $Z_{out} = 0$
(nol)</p><p class="MsoNormal" style="line-height: 150%; margin-bottom: 5,0000pt; margin-left: 36,0000pt; margin-top: 5,0000pt; mso-list: l0 level1 lfo1; mso-margin-bottom-alt: auto; mso-margin-top-alt: auto; mso-pagination: widow-orphan; text-indent: -18,0000pt;"> Lebar Pita (Bandwidth) atau $BW = \infty$ (tak terhingga)</p><p> Karakteristik tidak berubah dengan suhu </p><p></p><div class="separator" style="clear: both; text-align: center;"></div>

<p align="justify" class="MsoNormal" style="line-height: 150%; margin-bottom: 0,0000pt; margin-left: 36,0000pt; margin-right: 0,0000pt; margin-top: 0,0000pt; mso-pagination: widow-orphan; text-align: justify; text-indent: 0,0000pt; text-justify: inter-ideograph;"> </p></div><div class="MsoNormal"></div><div class="MsoNormal"><div class="MsoNormal"><span style="font-size: 4Percobaan</div><div class="MsoNormal">
</div><div class="MsoNormal"><div class="MsoNormal"><span style="font-size:

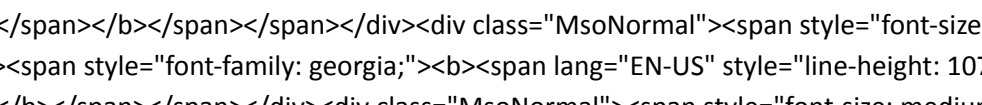

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georgia="" style="color: pink;">
```

4.1 Prosedur </p></div><div>
</div><div class="MsoNormal">1.
2.
3.
4.
5.</div><div class="MsoNormal">
</div><div class="MsoNormal"> </div>

```
<a name="rangkaian"></a><a href="#home" style="background-color: white;"><span font-family:="" georgia="" style="color: pink;">
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2. Rangkaian Simulasi

a. Gambar Rangkaian



[illegible]

cursor:

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<div class="MsoNormal" style="line-height: 150%;">

Datasheet Astable

Multivibrator <o:p></o:p><a

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<div class="MsoNormal">

</div>

<div class="MsoNormal" style="line-height: 150%; text-align: center;">

Datasheet Resistor <o:p></o:p><a

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url("https://lh5.googleusercontent.com/proxy/qp9VZiWzALoCn8RHFaBH2bEvB9gHRFvAgNj6Gf8LA8ljO_r5THKTUjAADrIqb5nijhvVIVrpxM5A3Azes8GVVmlrCYjWNBA=s0-d"), auto !important;">klik disini</div>

<div class="MsoNormal">

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<div class="MsoNormal" style="line-height: 150%; text-align: center;">

Datasheet Op-Amp <o:p></o:p><a

Datasheet Op-Amp <o:p></o:p><a

href="https://drive.google.com/u/0/uc?id=1r0lbTsW9YnidO42wX-lIn9SiBenf19oQ&export=download" style="background-color: white; color: #2a92ff; cursor:

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<div class="MsoNormal" style="line-height: 150%; text-align: center;">

Datasheet Baterai klik disini
</div><div class="MsoNormal" style="line-height: 150%; text-align: center;"><span style="font-family:

georgia;"> </div><div class="MsoNormal" style="line-height: 150%; text-align: center;">HTML klik disini
</div>

<div class="MsoNormal">

</div>

</div>

