

Dessiner un circuit électrique avec TikZ

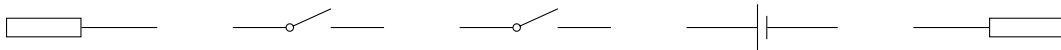
Dans le préambule :

```
\usepackage{pgf,tikz}
\usetikzlibrary{circuits.ee.IEC}
\usetikzlibrary{positioning}
```

1–Liste de composants

1.1–méthode `\draw`

```
\begin{tikzpicture}[circuit ee IEC,set make contact graphic= var make contact IEC graphic,set break contact
  graphic= var make contact IEC graphic]
%autres options possibles :
%font=\sffamily\Large,
%huge circuit symbols,
%every info/.style=cyan,
%%every circuit symbol/.style={ultra thick},
%every resistor/.style={draw=green},
%every bulb/.style={brown, very thick},
%circuit symbol lines/.style={thick,draw=red},
%circuit symbol open/.style={thick,draw,fill=orange},
%set make contact graphic= var make contact IEC graphic
\draw (0,0) to [resistor] (2,0);
\draw (3,0) to [diode] (5,0);
\draw (6,0) to [Zener diode] (8,0);
\draw (9,0) to [inductor] (11,0);
\draw (12,0) to [capacitor] (14,0);
\draw (15,0) to [bulb] (17,0);
\draw (0,-2) to [resistor={near start}] (2,-2);
\draw (3,-2) to [break contact] (5,-2);
\draw (6,-2) to [make contact] (8,-2);
\draw (9,-2) to [battery] (11,-2);
\draw (12,-2) to [resistor={near end}] (14,-2);
\draw (0,-4) to (0,-4.25) to [ground] (0,-4.5);
\end{tikzpicture}
```



1.2–méthode `\node`

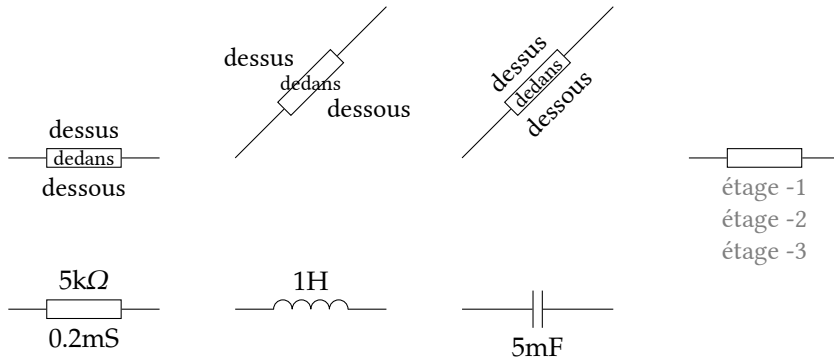
```
\begin{tikzpicture}[circuit ee IEC]
%ligne 1
\node [resistor] at (0,0){};
\node [resistor,point up] at (2,0){};
\node [diode,point left] at (4,0){};
\node [diode] at (6,0){};
\node [diode,point up] at (8,0){};
\node [diode,point down] at (10,0){};
\node[current direction={red, info={ [red]I}}] at (12,0){};
\node[current direction'={red, info'={ [red]I}}] at (14,0){};
\node[contact] at (16,0){};
\end{tikzpicture}
```



2-Liste des options

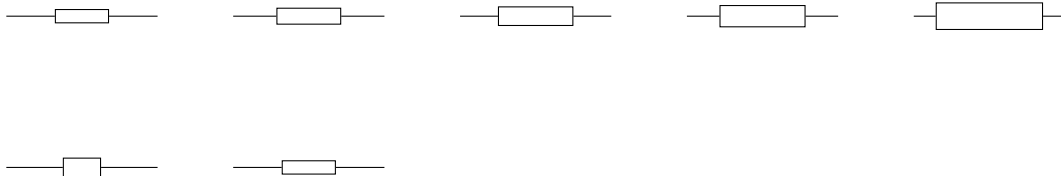
2.1-labels

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor={info=dessus,info'=dessous, info=center :{\footnotesize dedans}}] (2,0);
\draw (3,0) to [resistor={info=dessus,info'=dessous, info=center :{\footnotesize dedans}}] (5,2);
\draw (6,0) to [resistor={info sloped=dessus,info' sloped=dessous, info sloped=center :{\footnotesize dedans}}] (8,2);
\draw[] (9,0) to [resistor={info'={[align=center, gray]étage -1\\ étage -2\\étage -3}}] (11,0);
\draw (0,-2) to [resistor={ohm=5k, siemens'=0.2m}] (2,-2);
\draw (3,-2) to [inductor={henry=1}] (5,-2);
\draw (6,-2) to [capacitor={farad'=5m}] (8,-2);
\end{tikzpicture}
```



2.2-taille

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor=tiny circuit symbols] (2,0);
\draw (3,0) to [resistor=small circuit symbols] (5,0);
\draw (6,0) to [resistor=medium circuit symbols] (8,0);
\draw (9,0) to [resistor=large circuit symbols] (11,0);
\draw (12,0) to [resistor=huge circuit symbols] (14,0);
\draw (0,-2) to [resistor={circuit symbol size=width 2pt height 1pt}] (2,-2);
\draw[circuit symbol unit=5pt] (3,-2) to [resistor] (5,-2);
\end{tikzpicture}
```



2.3-émission-réception de lumière

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor=light emitting] (2,0);
\draw (3,0) to [resistor={light emitting={info=dessus}}] (5,0);
\draw (6,0) to [resistor={light emitting,info'=dessous}] (8,0);
\draw (9,0) to [resistor={light dependent={info=dessus}, info'=dessous}] (11,0);
\end{tikzpicture}
```



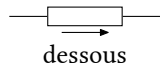
2.4-réglable

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [battery=adjustable] (2,0);
\end{tikzpicture}
```



2.5-direction

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor={direction info'={info'=dessous}}] (2,0);
\end{tikzpicture}
```



2.6-style

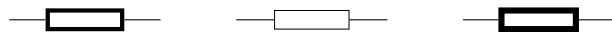
2.6.1-couleur

```
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor={info'={gray}dessous}}] (2,0);
\draw (3,0) to [resistor={red, fill=yellow}] (5,0);
\draw[purple] (6,0) to [resistor={info={red}dessus,info'={blue, fill=lightgray, rounded corners}dessous}}] (8,0);
\draw[brown, ultra thick] (9,0) to [bulb={green!40!black}] (11,0);
\end{tikzpicture}
```



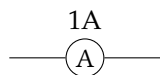
2.6.2-trait

```
\begin{tikzpicture}[circuit ee IEC]
\draw[] (0,0) to [resistor={style=ultra thick}] (2,0);
\draw[] (3,0) to [resistor={style=very thin}] (5,0);
\draw[] (6,0) to [resistor={style={line width=2.3pt}}] (8,0);
\end{tikzpicture}
```

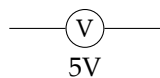


3-Construction de dipôles

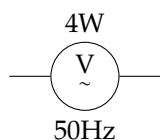
```
\tikzset{circuit declare symbol = Ameter}
\tikzset{set Ameter graphic = {draw,generic circle IEC, minimum size=5mm,info=center :A}}
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [Ameter={ampere=1}] (2,0);
\end{tikzpicture}
```



```
\tikzset{circuit declare symbol = Vmeter}
\tikzset{set Vmeter graphic = {draw,generic circle IEC, minimum size=5mm,info=center :}}
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [Vmeter={info={center :V},volt'=5}] (2,0);
\end{tikzpicture}
```



```
\tikzset{circuit declare symbol = AC voltmeter}
\tikzset{set AC voltmeter graphic =
{draw,generic circle IEC, minimum size=9mm,info=center :{${\underset{\sim}{V}}$}}}
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [AC voltmeter={watt=4,hertz'=50}] (2,0);
\end{tikzpicture}
```



```

\tikzset{circuit declare symbol = generator}
\tikzset{set generator graphic ={draw,minimum size=5mm,transform shape,info=center :G}}
\begin{tikzpicture}[circuit ee IEC]
\draw (3,0) to [generator](5,0);
\end{tikzpicture}

```

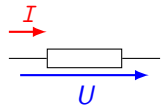


4-Construction de flèches

```

\tikzset{
  Pfeil/.style={thick,shorten >=#1,shorten <=#1,->,>=latex},
  UPfeil/.style={blue,Pfeil=#1,font={\sffamily\itshape}},
  IPfeil/.style={red,Pfeil=#1,font={\ttfamily\itshape}}
}
\begin{tikzpicture}[circuit ee IEC]
\draw (0,0) to [resistor={name=résistance}] (2,0);
\draw[IPfeil=0em]([yshift=1.0em]0,0) --node [above]{I}([yshift=1.0em]0.5,0);
\draw[UPfeil=-1em]([yshift=-1.0em]résistance.north west) --node [below]{U}([yshift=-1.0em]résistance.north east);
\end{tikzpicture}

```



5-Positionnement

```

\begin{tikzpicture}[circuit ee IEC]
\draw (-1,2) to [battery={name=pile}] (-1,0);
\node at ([shift={(-5pt, 4pt)}]pile.north){+};
\draw (2,0) to [battery={name={pile2}}] (4,0);
\node at ([xshift=-1em]pile2.north) {+};
\draw (0,0) to [bulb] ++(up :2) to [bulb] ++(right :3);
\end{tikzpicture}

```

