‘blockdiagram.sty’ in practice

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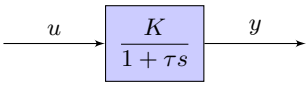
```
\usepackage{blockdiagram}
```

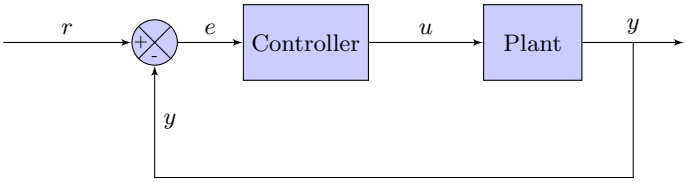
1 Transfer function

```
\begin{tikzpicture}
  \inputnode{I}
  \blockr{I}{G}{$\frac{K}{1+\tau s}$}
  \link{I}{G}{$u$}
  \outputnode{G}{O}
  \link{G}{O}{$y$}
\end{tikzpicture}
```



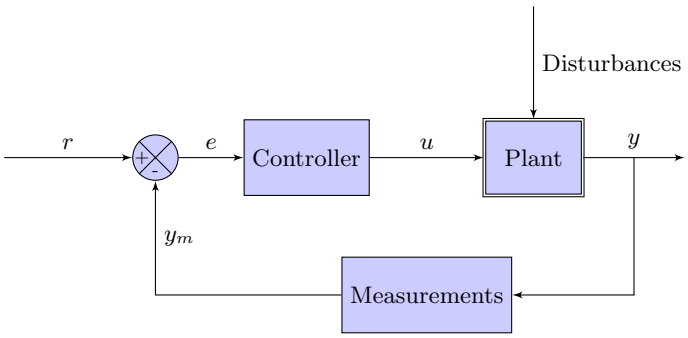
2 Feedback Loop

```
\begin{tikzpicture}
  \inputnode{I}
  \sumblockr{I}{S}{}{+}{-}{}
  \link{I}{S}{$r$}
  \blockr{S}{C}{Controller}
  \link{S}{C}{$e$}
  \blockr[3cm]{C}{P}{Plant}
  \link{C}{P}{$u$}
  \outputnode{P}{O}
  \link{P}{O}{$y$}
  \yxylink{P-O}{S}{$y$}
\end{tikzpicture}
```



3 Another Feedback Loop

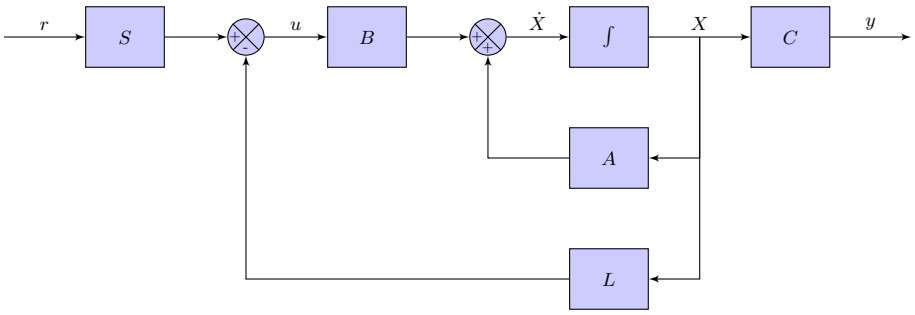
```
\begin{tikzpicture}
  \inputnode{I}
  \sumblockr{I}{S}{}{+}{-}{}
  \link{I}{S}{$r$}
  \blockr{S}{C}{Controller}
  \link{S}{C}{$e$}
  \plantblockr[3cm]{C}{P}{Plant}
  \link{C}{P}{$u$}
  \nodea{P}{D}
  \ylink{D}{P}{Disturbances}
  \outputnode{P}{O}
  \link{P}{O}{$y$}
  \blockb{C-P}{M}{Measurements}
  \yxlink{P-O}{M}{}
  \xylink{M}{S}{$y_m$}
\end{tikzpicture}
```



4 Linear Quadratic Regulator

```
\begin{tikzpicture}\setdiagramscale{0.8}
  \inputnode{E}
  \blockr{E}{filter}{$S$}
  \link{E}{filter}{$r$}
  \sumblockr{filter}{sum2}{}{+}{-}{}
  \link{filter}{sum2}{}
  \blockr{sum2}{command}{$B$}
  \link{sum2}{command}{$u$}
  \sumblockr{command}{sum1}{}{+}{+}{}
  \link{command}{sum1}{}
  \blockr{sum1}{integrator}{$\int$}
  \link{sum1}{integrator}{$\dot{X}$}
  \blockr[3cm]{integrator}{obs}{$C$}
  \link{integrator}{obs}{$X$}
  \outputnode{obs}{S}
  \link{obs}{S}{$y$}
  \blockb{integrator}{evolution}{$A$}
  \yxlink{integrator-obs}{evolution}{}
  \xylink{evolution}{sum1}{}
  \blockb{evolution}{regulator}{$L$}
```

```
  \yxlink{integrator-obs}{regulator}{}
  \xylink{regulator}{sum2}{}
\end{tikzpicture}
```



5 Observator

```
\begin{tikzpicture}
  \inputnode{E}
  \plantblockr{E}{system}{Plant}
  \outputnode{system}{S}
  \link{E}{system}{$u$}
  \link{system}{S}{$y$}
  \noder[1cm]{S}{SS}
  \blockb{SS}{observator}{Observator}
  \yxlink{system-S}{observator.170}{}
  \yxlink{E-system}{observator.190}{}
  \noder{observator}{X}
  \link{observator}{X}{$\hat{X}$}
\end{tikzpicture}
```