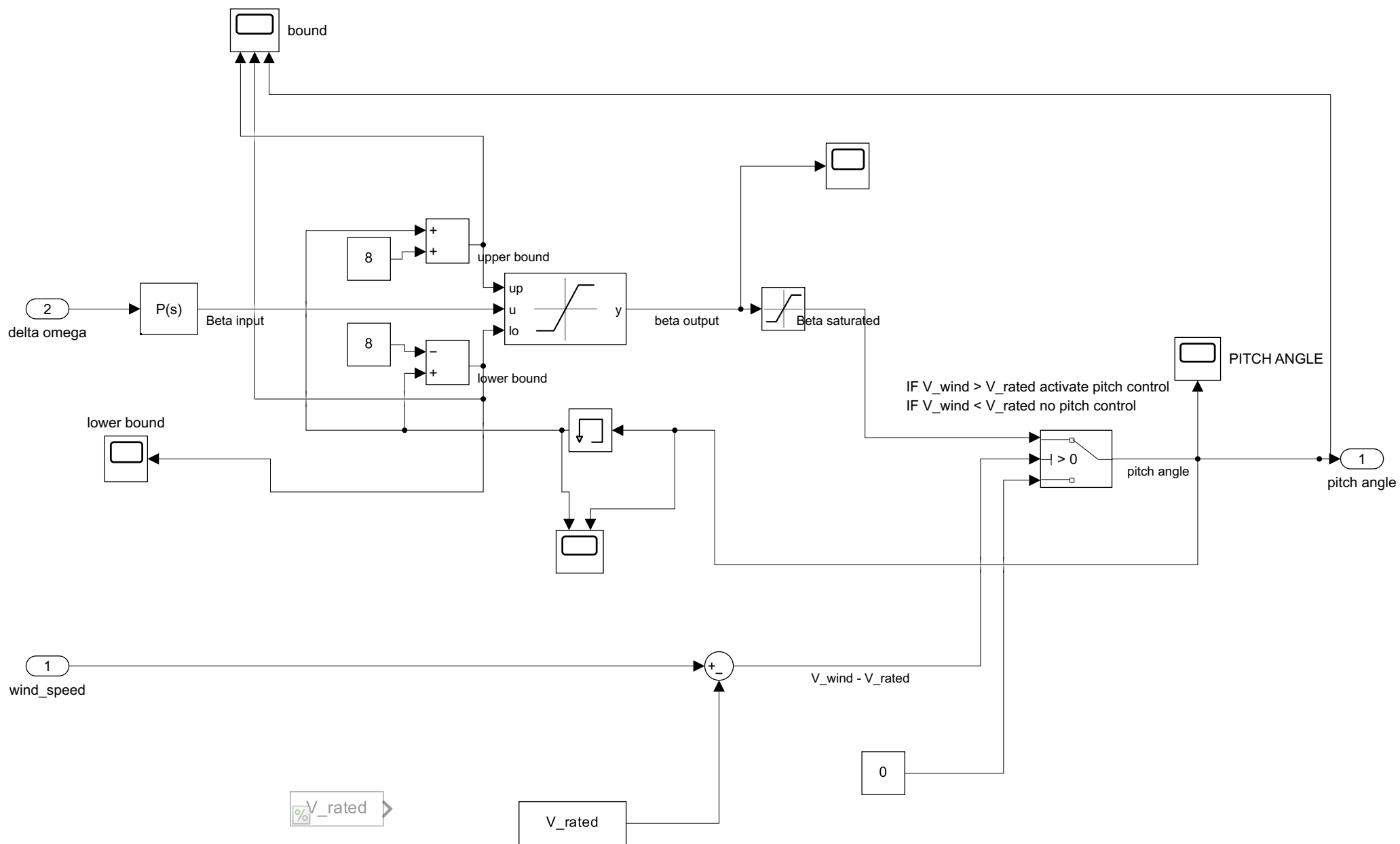


```
function VwOut = fcn(VwIn,V_ci, V_co, V_rated)
% if VwIn < V_ci
%     VwOut = 0;
% elseif VwIn >= V_ci && VwIn < V_co
%     VwOut = VwIn;
% else
%     VwOut = 0;
% end

if VwIn >= V_ci && VwIn < V_co
    VwOut = VwIn;
else
    VwOut = 0;
end
```



```
function domega_dt = RotorDynamics(omega, Tw, Tm, B_r, Jeq)

% Torque balance:

%  $J_{eq} \frac{d\omega}{dt} + B_r \omega = T_w - T_m$  rotor side reference frame
domega_dt = (Tw - Tm - B_r*omega) / Jeq;
```

```
function [lambda, Cp, Tw, Pw] = WindTorque(wind_speed, omega, beta, R_rotor, rho_air, A_rotor)

fake_zero = 1e-6;

lambda = omega * R_rotor / wind_speed;
Cp = PowerFactor(lambda, beta);
if Cp < fake_zero
    Cp = fake_zero;
end

% Actual extracted power from wind
Pw = 0.5*rho_air*wind_speed^3*A_rotor*Cp;

% Actual torque acting on the rotor: P = T * w
Tw = Pw / omega;
```