

MACHINE M1

REFINES M0

VARIABLES

r_light
g_light
amber_light

INVARIANTS

inv1 : *amber_light* ∈ *BOOL*
inv2 : *r_light* ∈ *BOOL*
inv3 : *g_light* ∈ *BOOL*
gluRed : *r_light* = *TRUE* ∨ *amber_light* = *TRUE* ⇔ *red_light* = *TRUE*
gluGreen : *g_light* = *TRUE* ⇔ *green_light* = *TRUE*
inv4 : *g_light* = *FALSE* ∨ *amber_light* = *FALSE*

EVENTS

Initialisation

begin
 act1 : *r_light* := *FALSE*
 act2 : *amber_light* := *FALSE*
 act3 : *g_light* := *TRUE*
end

Event *amber_to_red* ≐

when
 grd1 : *amber_light* = *TRUE*
 grd2 : *r_light* = *FALSE*
 grd3 : *g_light* = *TRUE*
then
 act1 : *r_light* := *TRUE*
 act2 : *amber_light* := *FALSE*
end

Event *green_to_amber* ≐

refines *green_to_red*

when
 grd1 : *g_light* = *TRUE*
then
 act1 : *amber_light* := *TRUE*
 act2 : *g_light* := *FALSE*
end

Event *red_to_redAmber* ≐

when
 grd1 : *r_light* = *TRUE*
 grd2 : *amber_light* = *FALSE*
then
 act1 : *amber_light* := *TRUE*
end

Event *redAmber_to_green* ≐

refines *red_to_green*

when
 grd1 : *r_light* = *TRUE*
 grd2 : *amber_light* = *TRUE*
then

```
    act1 : g_light := TRUE
    act2 : r_light := FALSE
    act3 : amber_light := FALSE
  end
END
```