

**1.FB\_PLC****1-10.POUS****1-10-3.Function Blocks****1-10-3-9.FlashLamp Config XVU****1-10-3-9-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
cmd	REAL				False	False	PWM setpoint command [0..100]
outputCmd	TimeProportionalOutput				False	False	
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Config is enabled
MyFlashLamp	OBJ\FLASHLAMP	No Edge			False	False	Flash lamp object
Enabled	BOOL	No Edge			False	False	Flash lamp is used
Commissioning	BOOL	No Edge			False	False	Put object in commissioning
Output	BOOL	No Edge			False	False	Output to command lamp

### **1-10-3-9-2.LadderBody**

0 S05V00R01 - 2025.03.05 - PC

- Patch status

S05V00R00 - 2025.02.24 - PC

- New normalized version

S03V00R00 - 2024-07-10 - PC

- New structure with enumeration.  
- Update FL system for new structure.  
- Clean disabled.

S02V00R00 - 2023.11.14 - PC

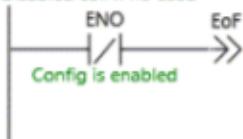
- Update with namespace

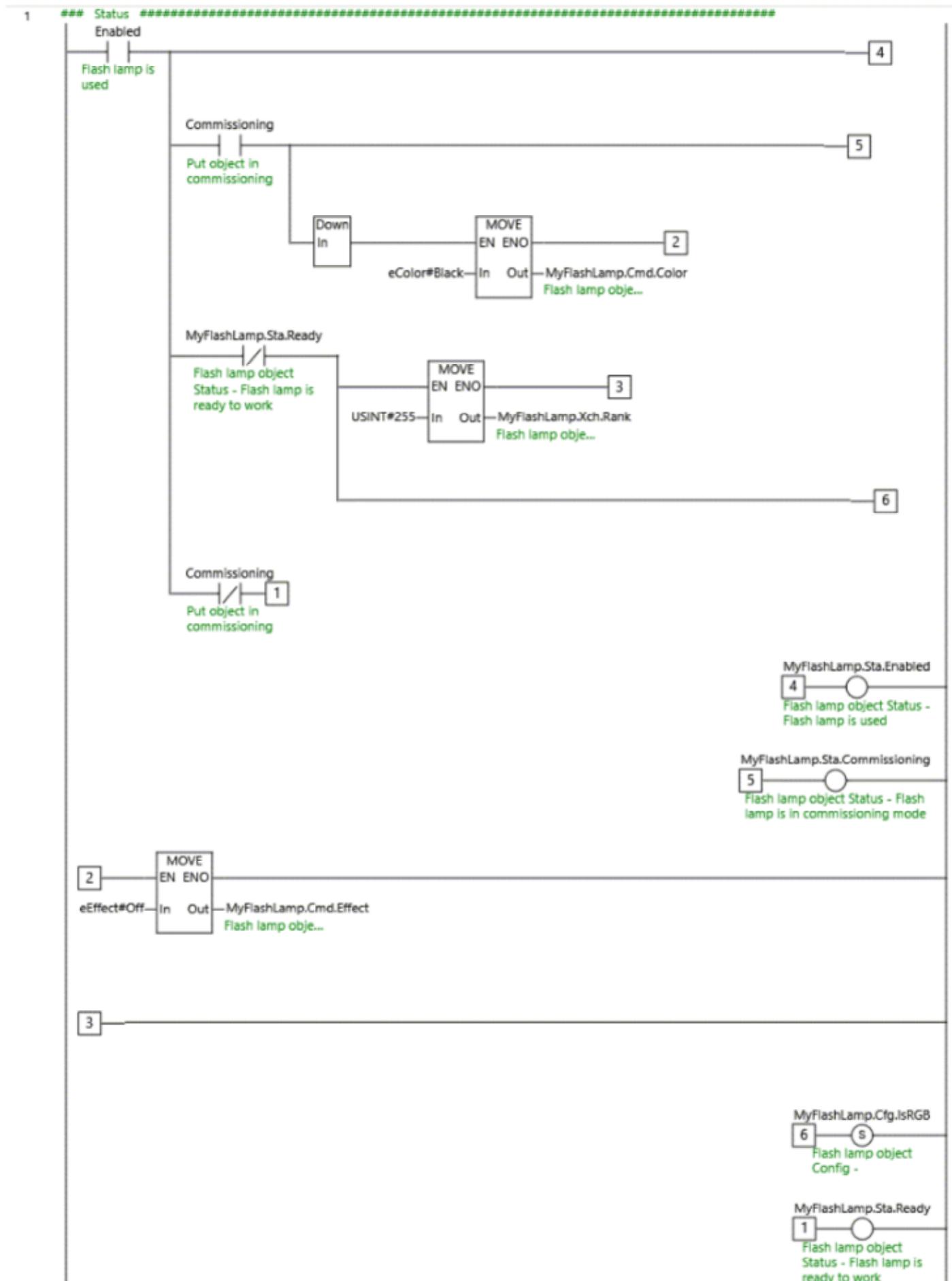
S01V00R01 - 2023-02-09 - JLM

- Force the reset (and re-write) of the bits when a higher priority appear.  
- avoid th PWM update durring the cycle.

---

Disabled coil if no used





2   ### Command #####

Define of effect for each PWM value:

```

Turn Off - 0% -
Cmd_01 - 4% Steady Red
Cmd_02 - 10% Steady Orange
Cmd_03 - 16% Steady Green
Cmd_04 - 22% Steady Blue
Cmd_05 - 28% Flashing 3x Red
Cmd_06 - 34% Flashing 3x Orange
Cmd_07 - 40% Flashing 3x Green
Cmd_08 - 46% Flashing 3x Blue
Cmd_09 - 52% Blinking Red
Cmd_10 - 58% Blinking Orange
Cmd_11 - 64% Blinking Green
Cmd_12 - 70% Blinking Blue
Cmd_13 - 76% Rotating Red
Cmd_14 - 82% Rotating Orange
Cmd_15 - 88% Rotating Green
Cmd_16 - 94% Rotating Blue
Turn Off - 100% -

```



```

1 // In function of the effect
2 CASE MyFlashLamp.Cmd.Effect OF
3     // Select color value
4     eEffect#Steady:
5     CASE MyFlashLamp.Cmd.Color OF
6         eColor#Red:
7             cmd := 4;           // 04% for Steady - Red
8         eColor#Yellow:
9             cmd := 10;          // 10% for Steady - Orange
10        eColor#Green:
11            cmd := 16;          // 16% for Steady - Green
12        eColor#Blue:
13            cmd := 22;          // 22% for Steady - Blue
14    ELSE
15        cmd := 0;           // For Off in case of other color
16        MyFlashLamp.Sta.Fault := TRUE;
17    END_CASE;
18
19    eEffect#Flashing:
20    CASE MyFlashLamp.Cmd.Color OF
21        eColor#Red:
22            cmd := 28;          // 28% for Flashing - Red
23        eColor#Yellow:
24            cmd := 34;          // 34% for Flashing - Orange
25        eColor#Green:
26            cmd := 40;          // 40% for Flashing - Green
27        eColor#Blue:
28            cmd := 46;          // 46% for Flashing - Blue
29    ELSE
30        cmd := 0;           // For Off in case of other color
31        MyFlashLamp.Sta.Fault := TRUE;
32    END_CASE;
33
34    eEffect#Blinking:
35    CASE MyFlashLamp.Cmd.Color OF
36        eColor#Red:
37            cmd := 52;          // 52% for Blinking - Red
38        eColor#Yellow:
39            cmd := 58;          // 58% for Blinking - Orange
40        eColor#Green:
41            cmd := 64;          // 64% for Blinking - Green
42        eColor#Blue:
43            cmd := 70;          // 70% for Blinking - Blue

```

```

44:    ELSE
45:        cmd := 0;           // For Off in case of other color
46:        MyFlashLamp.Sta.Fault := TRUE;
47:    END_CASE;
48:
49:    eEffect#Rotating;
50:    CASE MyFlashLamp.Cmd.Color OF
51:        eColor#Red:
52:            cmd := 76;          // 76% for Rotating - Red
53:        eColor#Yellow:
54:            cmd := 82;          // 82% for Rotating - Orange
55:        eColor#Green:
56:            cmd := 88;          // 88% for Rotating - Green
57:        eColor#Blue:
58:            cmd := 94;          // 94% for Rotating - Blue
59:    ELSE
60:        cmd := 0;           // For Off in case of other color
61:        MyFlashLamp.Sta.Fault := TRUE;
62:    END_CASE;
63:
64:    eEffect#Off;
65:    cmd := 0;           // For Off in case of other color
66: ELSE
67:     // Bad effect selected
68:     cmd := 0;
69:     MyFlashLamp.Sta.Fault := TRUE;
70: END_CASE;

```

3 PWM command output



4 EndFB EoF



**1-10-3-10.FlashLamp Config BNI 3stacks****1-10-3-10-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
cmd	OBJ\uWord				False	False	Color command
cfgUp	FlashLamp_Config_RGB				False	False	
cfgMiddle	FlashLamp_Config_RGB				False	False	
cfgLow	FlashLamp_Config_RGB				False	False	
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Config is enabled
MyFL_Up	OBJ\FLASHLAMP	No Edge			False	False	Upper segment of flash lamp
MyFL_Middle	OBJ\FLASHLAMP	No Edge			False	False	Middle segment of flash lamp
MyFL_Low	OBJ\FLASHLAMP	No Edge			False	False	Lower segment of flash lamp
Enabled	BOOL	No Edge			False	False	Flash lamp is used
Commissioning	BOOL	No Edge			False	False	Put object in commissioning
Output	ARRAY[0..1] OF BYTE	No Edge			False	False	IO-Link structure

**1-10-3-10-2.LadderBody**

0 S05V00R00 - 2025.02.24 - PC

- New normalized version

S01V00R00 - 2024-07-10 - PC

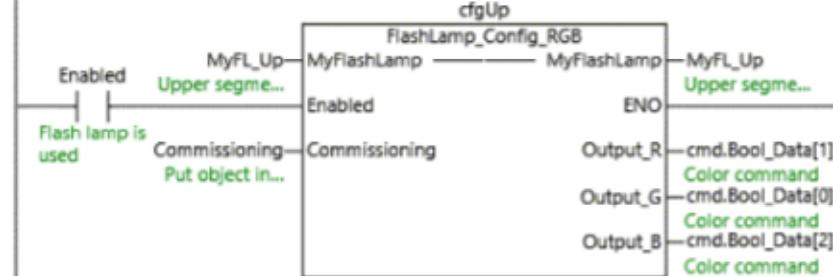
- First version of Balluf "flash lamp" object

Disabled coil if not used or activated

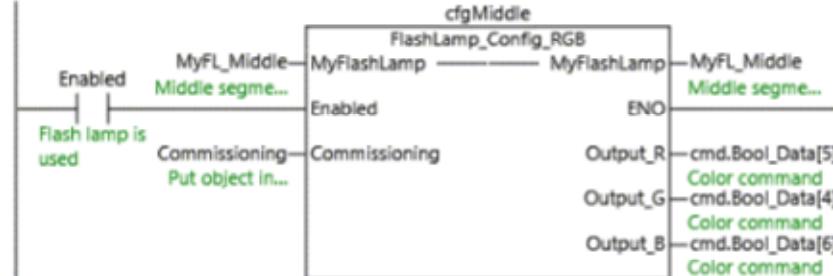


1 ### Flashlamp configuration #####

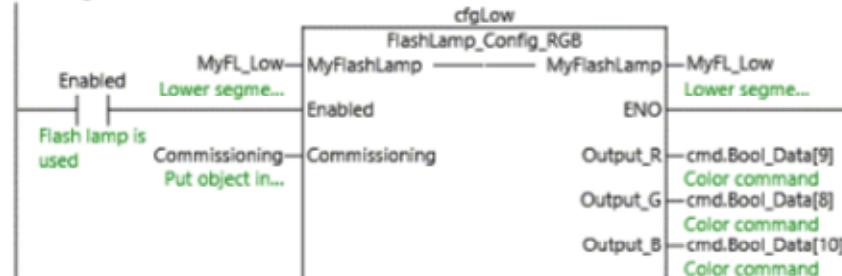
Upper segment



2 Middle segment



3 Lower segment

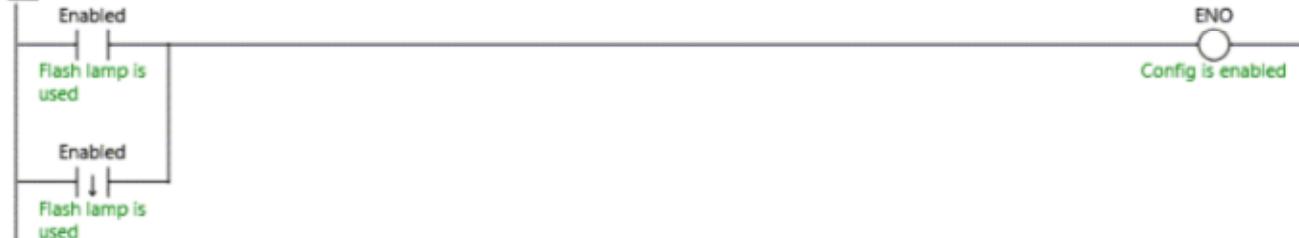


4 Copy data to output



5 EndFB

EoF



**1-10-3-11.FlashLamp Config RGB****1-10-3-11-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
effectCmd	BOOL				False	False	Effect to apply to output
r	BOOL				False	False	Red
g	BOOL				False	False	Green
b	BOOL				False	False	Blue
cmd	BYTE				False	False	
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Config is enabled
MyFlashLamp	OBJ\FLASHLAMP	No Edge			False	False	Flash lamp object
Enabled	BOOL	No Edge			False	False	Flash lamp is used
Commissioning	BOOL	No Edge			False	False	Put object in commissioning
Output_R	BOOL	No Edge			False	False	Red light command
Output_G	BOOL	No Edge			False	False	Green light command
Output_B	BOOL	No Edge			False	False	Blue light command
<b>VAR_EXTERNAL</b>							
T_1s	BOOL					False	
T_2s	BOOL					False	
T_100ms	BOOL					False	
T_200ms	BOOL					False	

### **1-10-3-11-2.LadderBody**

0 S05V00R01 - 2025.03.05 - PC

- Delete case for color command
- Add "FastBlink" effect
- Patch status

S05V00R00 - 2025.02.24 - PC

- New normalized version

S01V01R01 - 2024.06.30 - PC

- Output color was wrong with the new enum

S01V01R00 - 2024.06.30 - PC

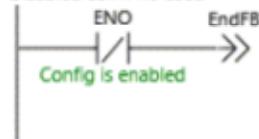
- Modify element of color enumeration

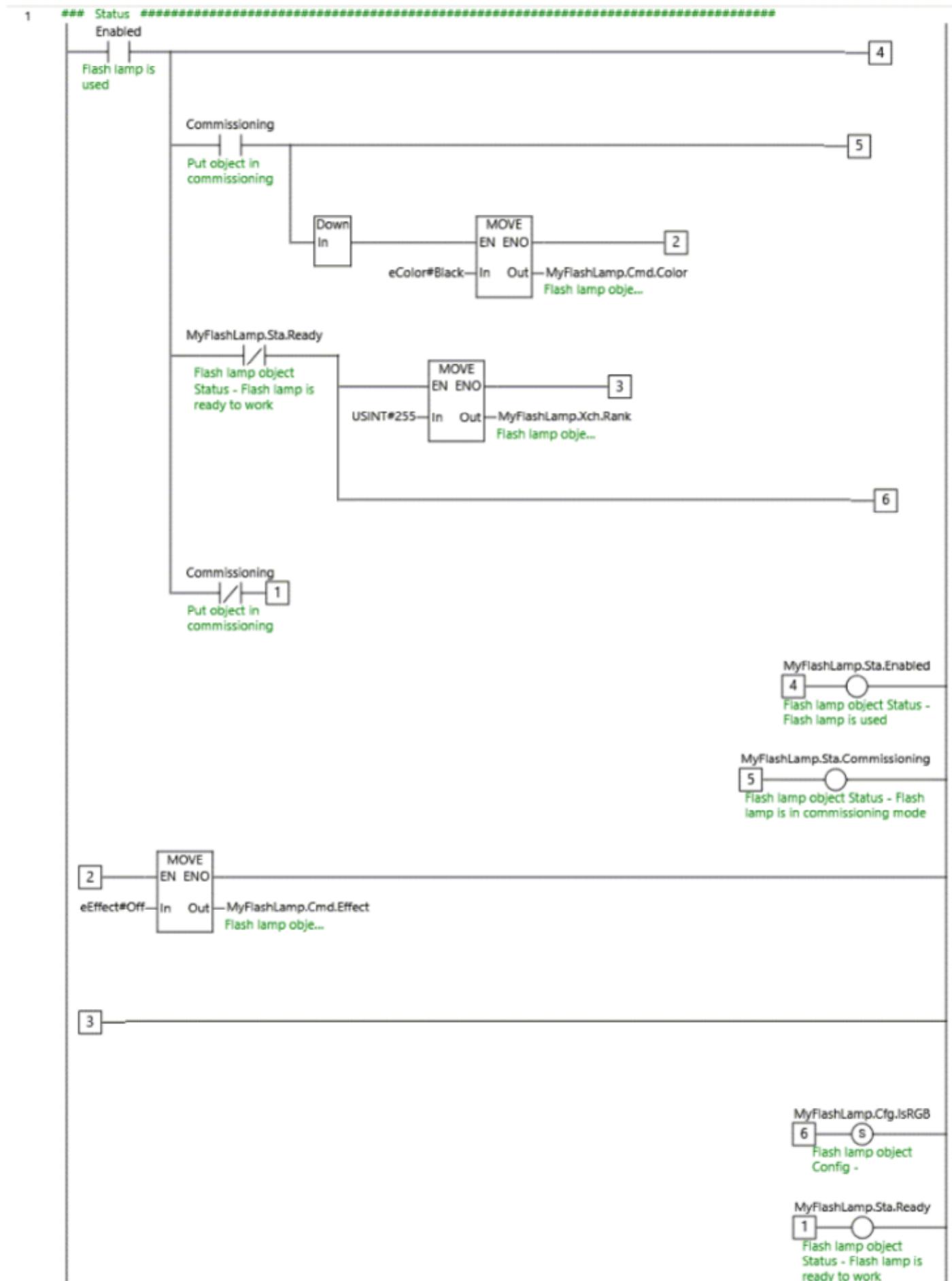
S01V00R00 - 2024.07.10 - PC

- First version of RGB "flash lamp" object

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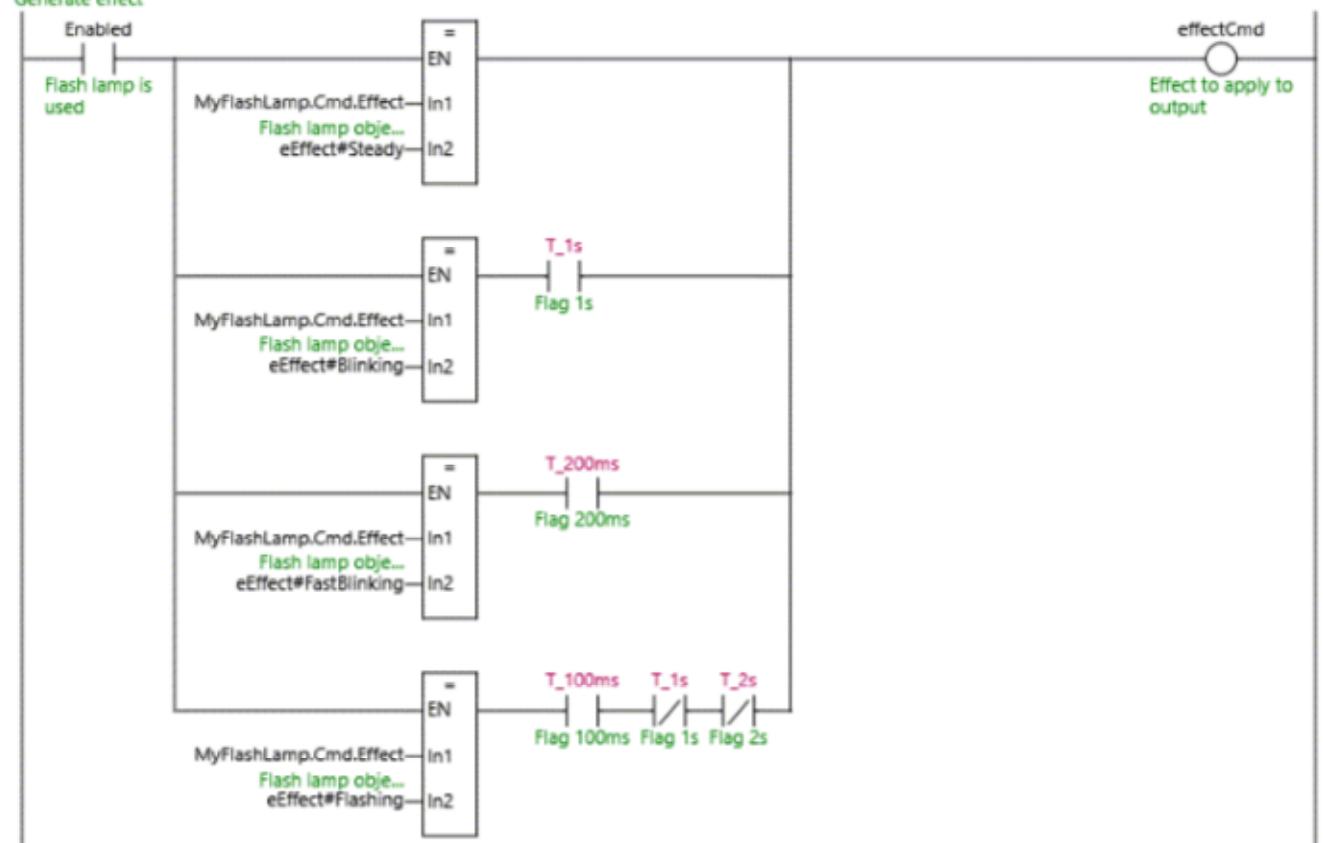
Disabled coil if no used



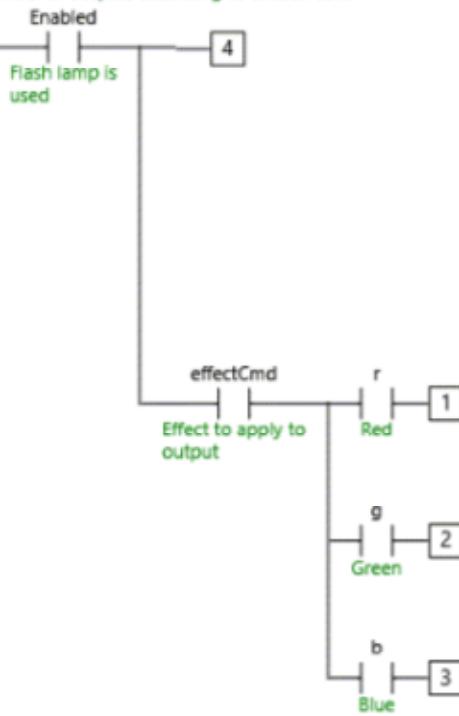


2   ### Command #####

### Generate effect



## 3 Control of outputs according to chosen color

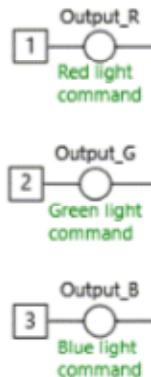


4

```

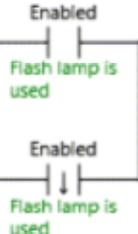
1 // If a color update is needed
2 IF MyFlashLamp.Cmd.Color <> eColor#NoUpdate THEN
3   // Convert color in RGB
4   cmd := DINT_TO_BYTE(EnumToNum(MyFlashLamp.Cmd.Color)) AND 7;
5   r := TestABit(cmd, 0);
6   g := TestABit(cmd, 1);
7   b := TestABit(cmd, 2);
8 END_IF;

```



## 4 EndFB

EndFB



ENO  
Config is enabled

**1-10-3-12.FlashLamp Config Modlight 5stacks****1-10-3-12-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
applyStack1	FlashLamp_Modlight_DoNotUse				False	False	
applyStack2	FlashLamp_Modlight_DoNotUse				False	False	
applyStack3	FlashLamp_Modlight_DoNotUse				False	False	
applyStack4	FlashLamp_Modlight_DoNotUse				False	False	
applyStack5	FlashLamp_Modlight_DoNotUse				False	False	
nbSeg	USINT				False	False	Number of segment to write
fillingClear	FlashLamp_Modlight_DoNotUse				False	False	
fillingLight	FlashLamp_Modlight_DoNotUse				False	False	

**VAR\_INPUTOUTPUT**

ENO	BOOL	No Edge			False	False	Config is enabled
MyFL_Stack5	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 5
MyFL_Stack4	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 4
MyFL_Stack3	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 3
MyFL_Stack2	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 2
MyFL_Stack1	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 1
Enable	BOOL	No Edge			False	False	Flash lamp is used
Invert	BOOL	No Edge			False	False	Invert output direction
Commissioning	BOOL	No Edge			False	False	Put object in commissioning
Data01	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 1
Data02	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 2
Data03	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 3
Data04	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 4
Data05	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 5
Data06	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 6
Data07	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 7
Data08	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 8
Data09	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 9
Data10	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 10
Data11	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 11
Data12	ARRAY[0..1] OF Byte	No Edge			False	False	IO-Link output data 12

**1-10-3-12-2.LadderBody**

0 S05V00R01 - 2025.02.24 - PC

- Patch name and comment.

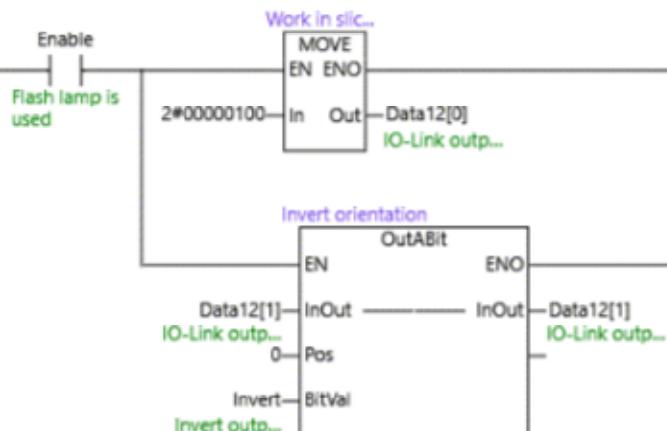
S05V00R00 - 2025.02.21 - NW

- First version of FlashLight

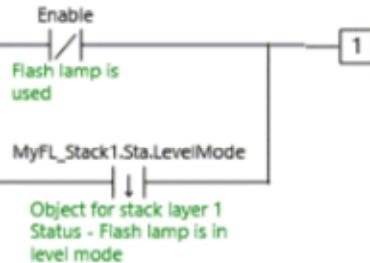
Disabled coil if not used or activated



1 Material command



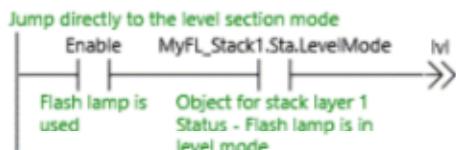
2 Clear data when disabled



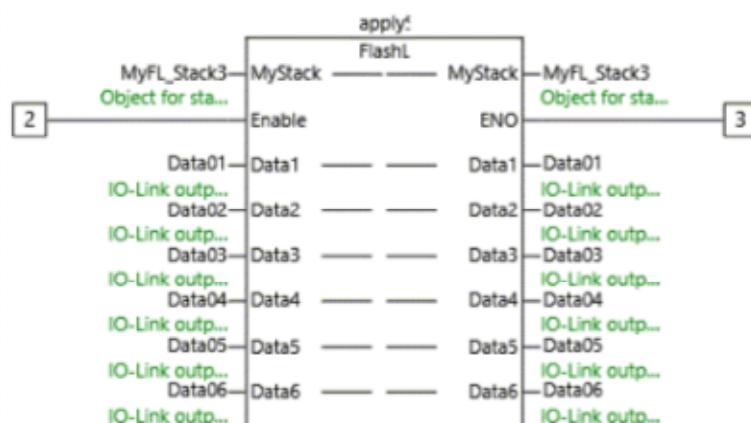
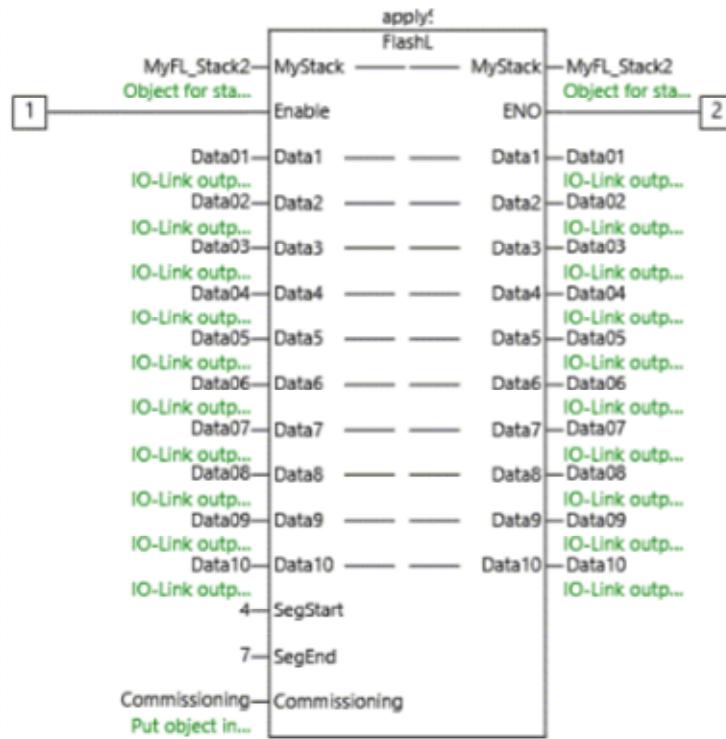
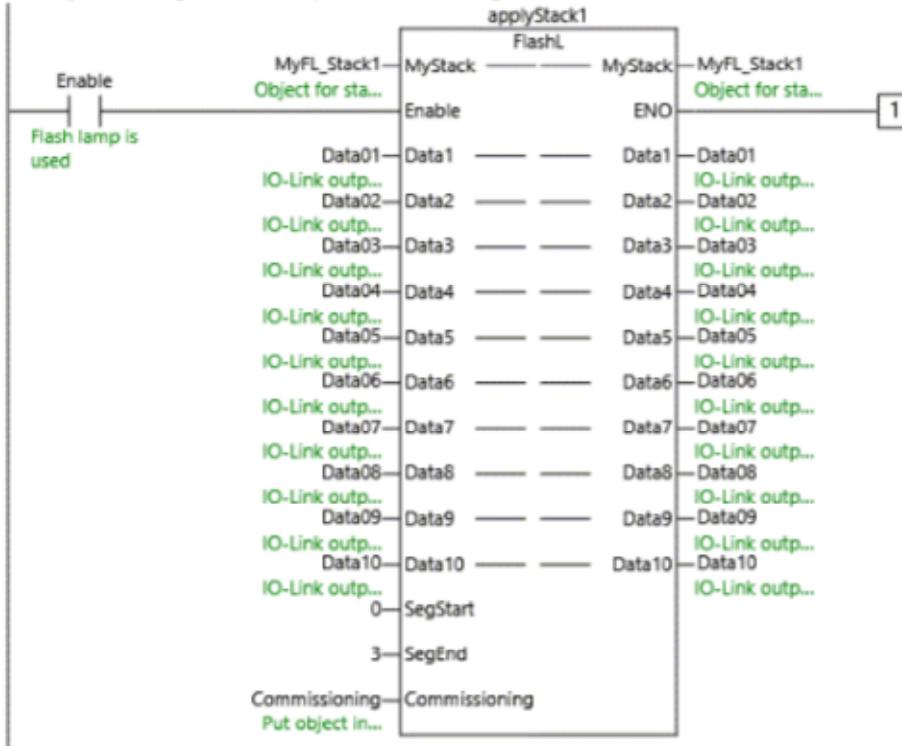
```

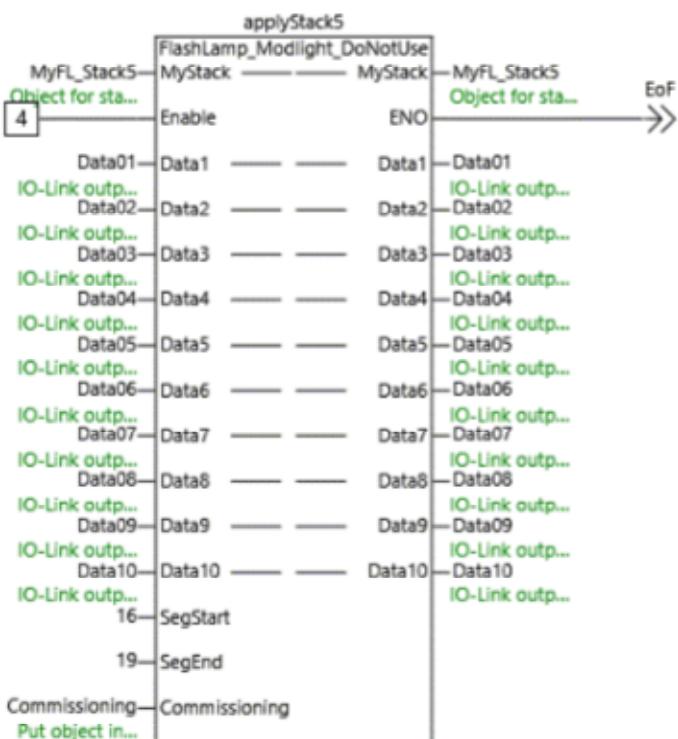
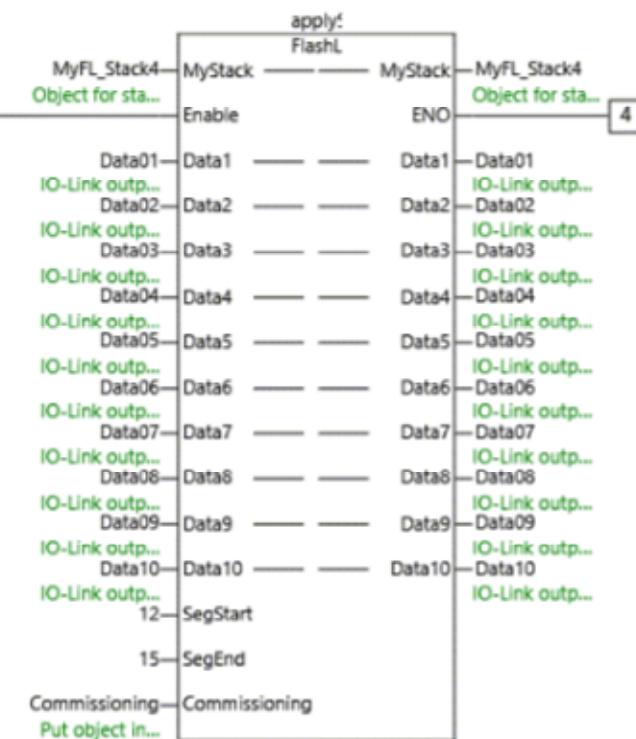
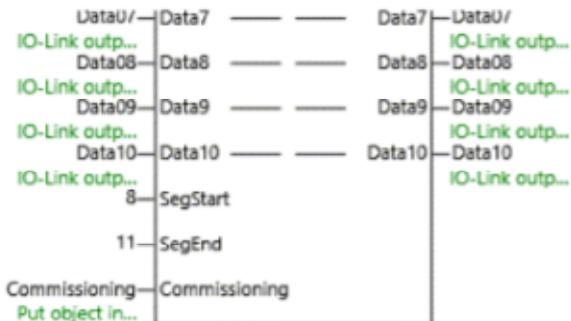
1 // Find the number of segment to draw
2 Clear(Data01);
3 Clear(Data02);
4 Clear(Data03);
5 Clear(Data04);
6 Clear(Data05);
7 Clear(Data06);
8 Clear(Data07);
9 Clear(Data08);
10 Clear(Data09);
11 Clear(Data10);
12 Clear(Data11);
13 Clear(Data12);
    
```

3 #### Command for stack mode #####



4 Set every stack on segments. The lamp have 20 writable segment

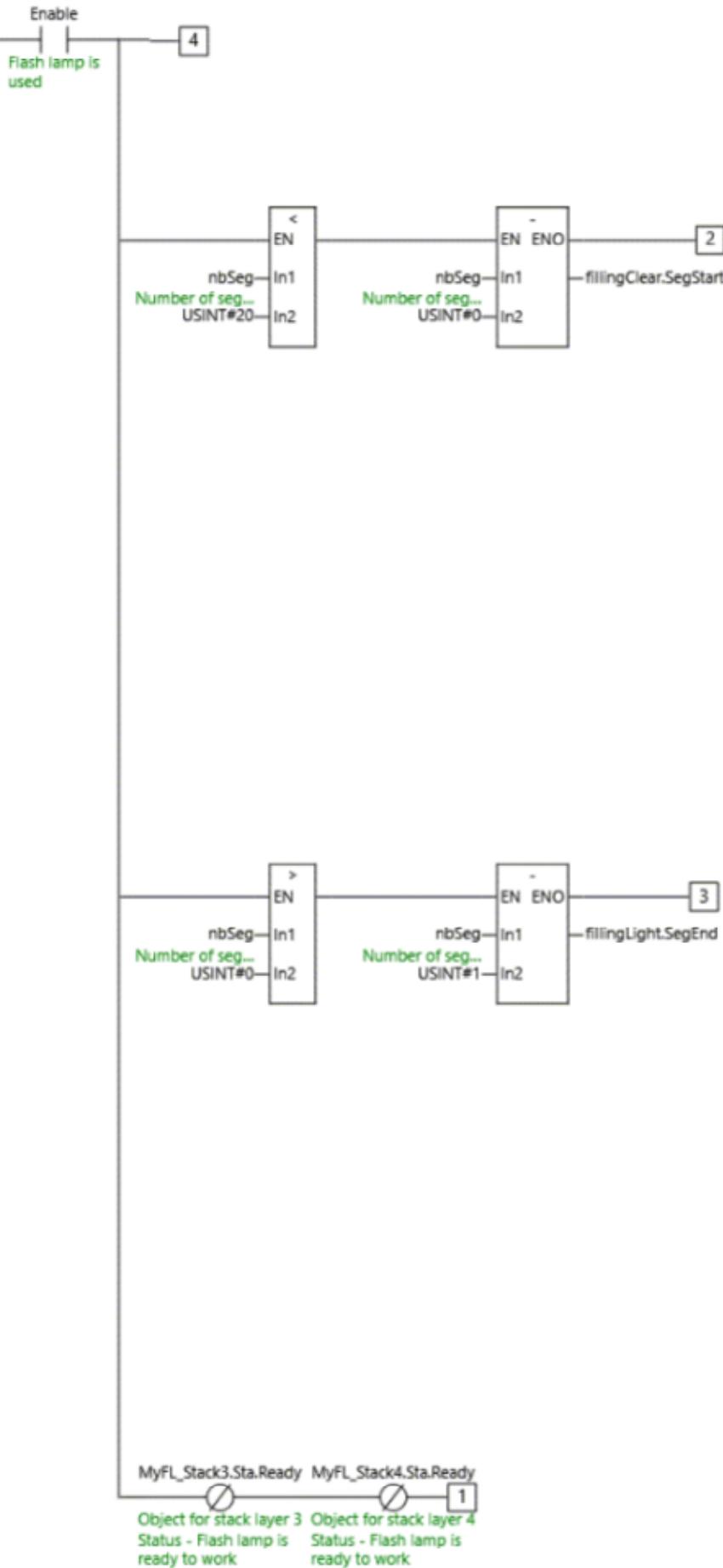


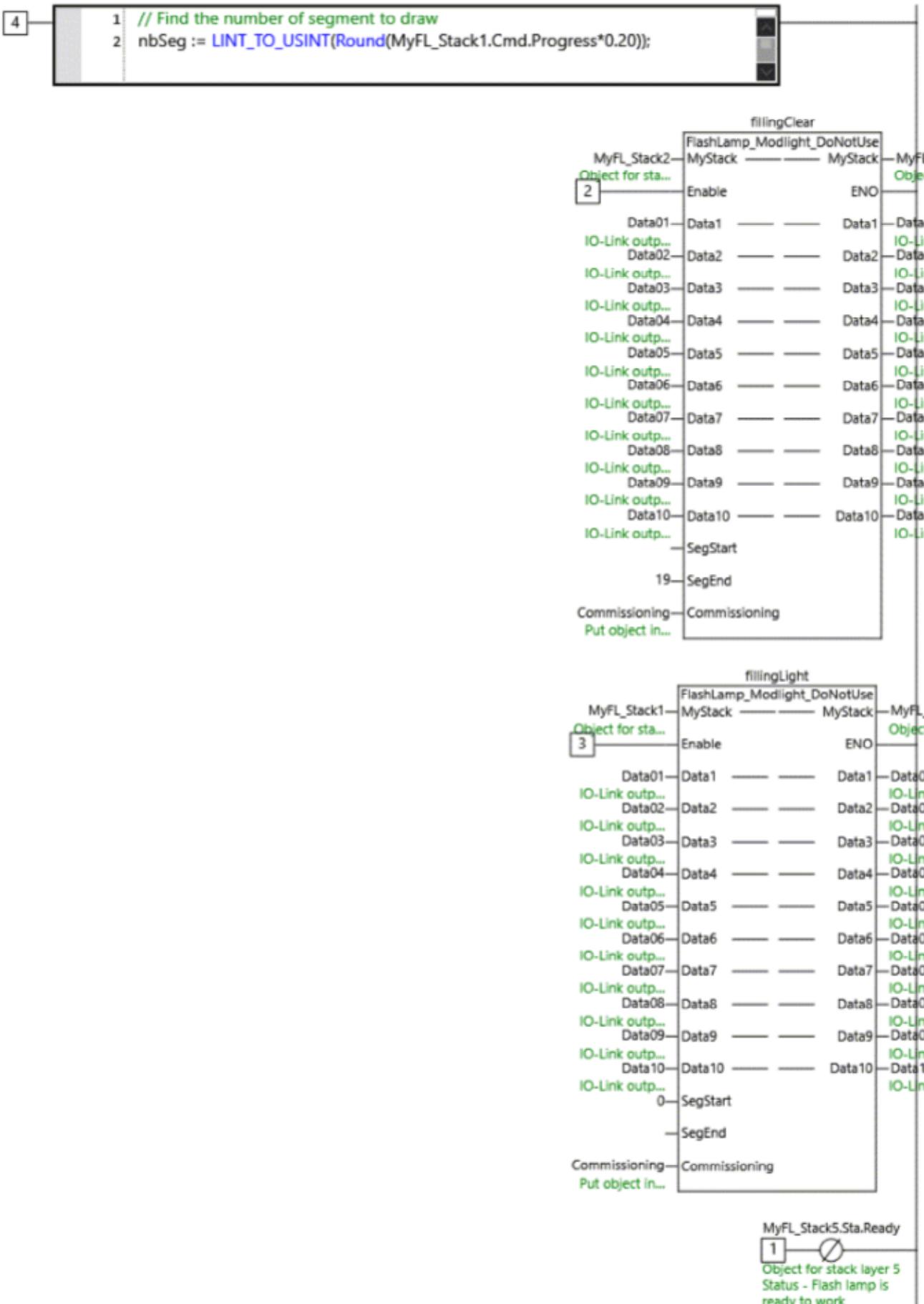


5   ### Command for level mode #####

Set filling effect with stack 1 parameters for the filling side and stack 2 for the background

lvl







**1-10-3-16.FlashLamp Modlight DoNotUse****1-10-3-16-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
cmd	BYTE				False	False	Color and effect command code
i	INT				False	False	Index
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Config is enabled
MyStack	OBJ\FLASHLAMP	No Edge			False	False	
Enable	BOOL	No Edge			False	False	
Data1	ARRAY[0..1] OF Byte	No Edge			False	False	
Data2	ARRAY[0..1] OF Byte	No Edge			False	False	
Data3	ARRAY[0..1] OF Byte	No Edge			False	False	
Data4	ARRAY[0..1] OF Byte	No Edge			False	False	
Data5	ARRAY[0..1] OF Byte	No Edge			False	False	
Data6	ARRAY[0..1] OF Byte	No Edge			False	False	
Data7	ARRAY[0..1] OF Byte	No Edge			False	False	
Data8	ARRAY[0..1] OF Byte	No Edge			False	False	
Data9	ARRAY[0..1] OF Byte	No Edge			False	False	
Data10	ARRAY[0..1] OF Byte	No Edge			False	False	
SegStart	USINT	No Edge			False	False	
SegEnd	USINT	No Edge			False	False	
Commissioning	BOOL	No Edge			False	False	

**1-10-3-16-2.LadderBody**

0 S05V00R01 - 2025.02.24 - PC

- Patch name and comment.

S05V00R00 - 2025.02.21 - NW

- First version of FlashLamp

Disabled coil if not used or activated



1

### Status #####

Enable

MyStack.Sta.LevelMode

Status - Flash lamp is in level mode

Commissioning

MyStack.Sta.Enabled

Status - Flash lamp is used

MyStack.Sta.Commissioning

Status - Flash lamp is in commissioning mode

MyStack.Sta.Ready

Status - Flash lamp is ready to work



MyStack.Cfg.IsMurr

Config -

MyStack.Sta.Commissioning

Status - Flash lamp is in commissioning mode

MyStack.Sta.Ready

Status - Flash lamp is ready to work

2    Command

Enable

```
1 // Convert color in RGB
2 cmd := DINT_TO_BYTE(EnumToNum(MyStack.Cmd.Color)) AND 7;
3
4 // Exchange aqua and fuchsia
5 IF cmd = 5 THEN
6   cmd := 6;
7 ELSIF cmd = 6 THEN
8   cmd := 5;
9 END_IF;
10
11 // Case for the Effect
12 // Slow (01xx xxxx), Middle (10xx xxxx) and Fast (11xx xxxx).
13 CASE MyStack.Cmd.Effect OF
14   eEffect#Off:
15     cmd:= 0 ;
16   eEffect#Steady:
17     cmd:= 2#00001000 OR cmd ;
18   eEffect#Blinking:
19     cmd:= 2#01010000 OR cmd ;
20   eEffect#FastBlinking:
21     cmd:= 2#11010000 OR cmd ;
22   eEffect#Flashing:
23     cmd:= 2#01011000 OR cmd ;
24   eEffect#Rotating:
25     cmd:= 2#10100000 OR cmd ;
26 END_CASE;
27
28
29
```

3    Output control

Enable

```
1 FOR i := SegStart TO SegEnd DO
2   CASE i OF
3     0..1: Data1[i MOD 2] := cmd;
4     2..3: Data2[i MOD 2] := cmd;
5     4..5: Data3[i MOD 2] := cmd;
6     6..7: Data4[i MOD 2] := cmd;
7     8..9: Data5[i MOD 2] := cmd;
8     10..11: Data6[i MOD 2] := cmd;
9     12..13: Data7[i MOD 2] := cmd;
10    14..15: Data8[i MOD 2] := cmd;
11    16..17: Data9[i MOD 2] := cmd;
12    18..19: Data10[i MOD 2] := cmd;
13   END_CASE;
14 END_FOR;
```



**1-10-3-17.FlashLamp Link****1-10-3-17-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
masterOrder	BOOL				False	False	Order from master
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	
MyMaster	OBJ\FLASHLAMP	No Edge			False	False	Check the command of this flashlamp
MySlave	OBJ\FLASHLAMP	No Edge			False	False	And write to this slave flashlamp
Enable	BOOL	No Edge			False	False	

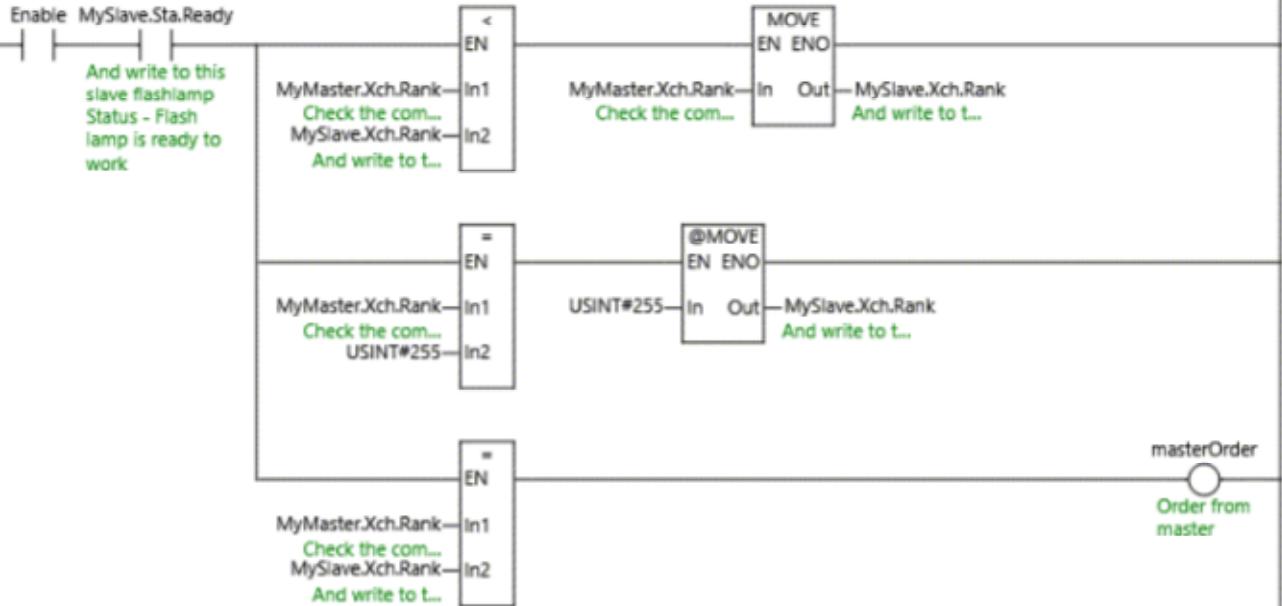
**1-10-3-17-2.LadderBody**

0 S05V00R00 - 2025.02.11 - PC  
- First version of link flashlamp

Disabled coil if not used or activated



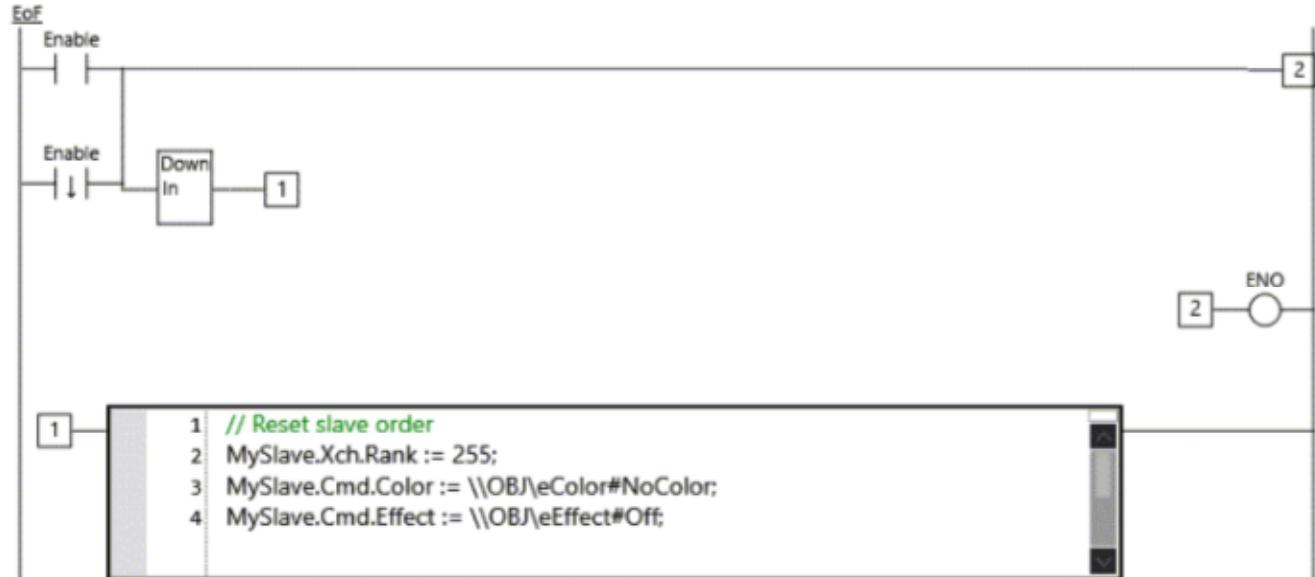
1 Get order from master



2 Write slave order



3 EndFB



**1-10-3-18.FlashLamp\_Apply****1-10-3-18-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
run	BOOL				False	False	Apply effect
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Effect is displayed
MyFlashLamp	OBJ\FLASHLAMP	No Edge			False	False	FL object
Active	BOOL	No Edge			False	False	Active this effect
Rank	USINT	No Edge	110		False	False	Priority of this effect (Lower is greater) [1..125]
Color	OBJ\Color	No Edge	Black		False	False	Color command of flash lamp
Effect	OBJ\Effect	No Edge	Off		False	False	Effect of flash lamp

**1-10-3-18-2.LadderBody**

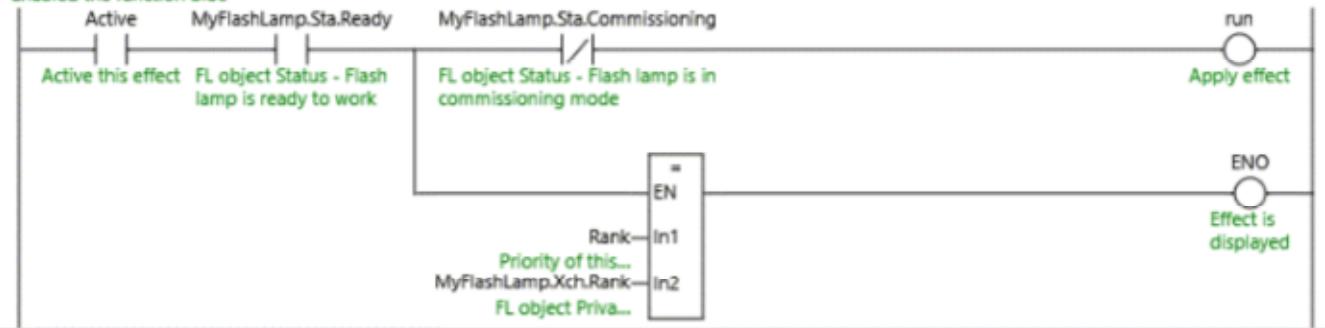
0 S05V00R00 - 2025.02.24 - PC

- New normalized version

S01V00R00 - 2024.08.08 - PC

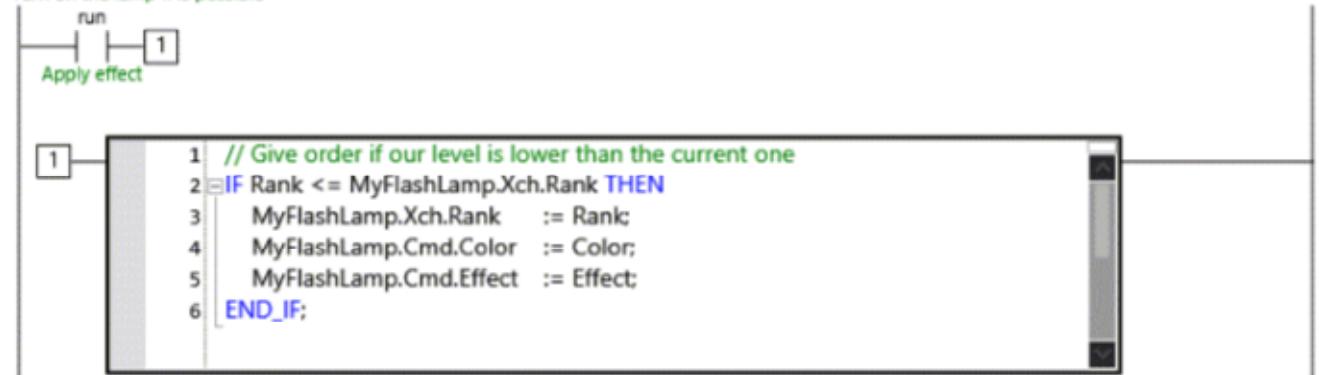
- Flash lamp command with effect parameter

Enabled the function bloc

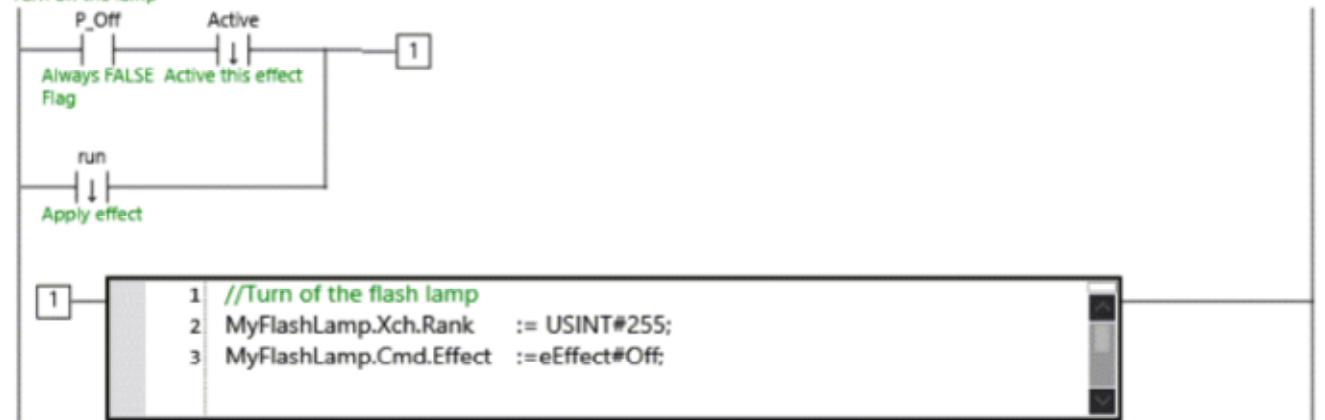


1 #### Command #####

Turn on the lamp if is possible



2 Turn off the lamp



**1-10-3-19.FlashLamp\_Level****1-10-3-19-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
configFill	FlashLamp_Apply				False	False	
configEmpty	FlashLamp_Apply				False	False	
run	BOOL				False	False	
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Effect is displayed
MyFL_Stack1	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 1
MyFL_Stack2	OBJ\FLASHLAMP	No Edge			False	False	Object for stack layer 2
Active	BOOL	No Edge			False	False	Active this effect
Rank	USINT	No Edge	110		False	False	Priority of this effect (Lower is greater)
Progress	REAL	No Edge			False	False	Define level in filling mode [0..100%]
ColorFilling	OBJ\Color	No Edge	Green		False	False	Color of filled part
ColorEmpty	OBJ\Color	No Edge	Black		False	False	Color of empty part

**1-10-3-19-2.LadderBody**

0 S05V00R00 - 2025-02-24 - NW

- Modified enumeration, Level.

S04V00R00 - 2024-08-08 - PC

- Use "SelectEffect" FB

S03V00R00 - 2024-07-10 - PC

- New structure with enumeration.
- Update FL system for new structure.
- Add comment
- Use ENO to show if it's displayed

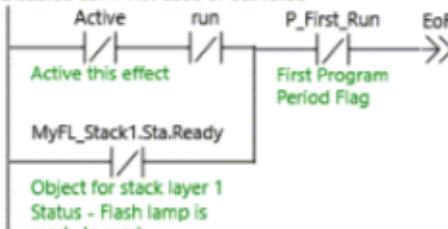
S02V00R00 - 2023.11.14 - PC

- Update with namespace

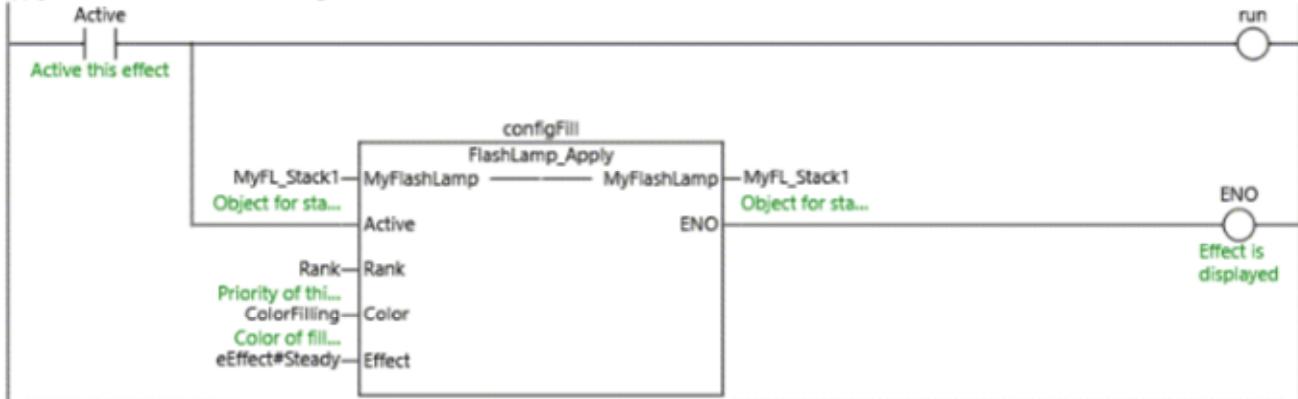
S01V00R00 - 2020.12.04 - PC

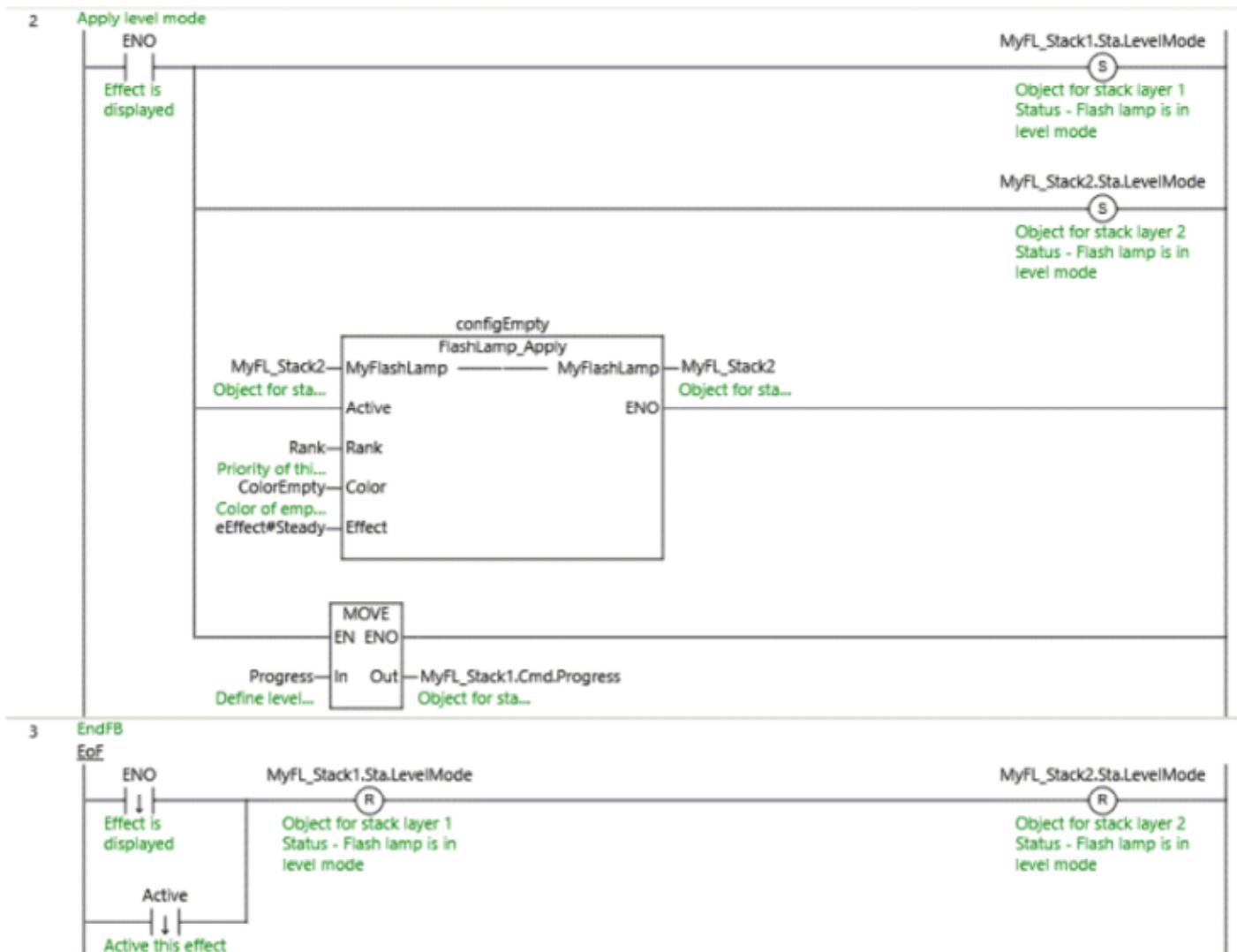
- Patch auto-reset of command

Disabled coil if not used or activated



1 Apply effect if level on stack 1 is enough





**1-10-3-20.FL RedSteady****1-10-3-20-1.Variables**

Name	Data Type	Edge	Initial Value	AT	Retain	Constant	Comment
<b>VAR</b>							
config	FlashLamp_Apply				False	False	
<b>VAR_INPUTOUTPUT</b>							
ENO	BOOL	No Edge			False	False	Effect is displayed
MyFlashLamp	OBJ\FLASHLAMP	No Edge			False	False	FL object
Active	BOOL	No Edge			False	False	Active this effect
Rank	USINT	No Edge	110		False	False	Priority of this effect (Lower is greater)

**1-10-3-20-2.LadderBody**

0 S05V00R00 - 2025.02.24 - PC

- New normalized version
- Add namespace

S04V00R00 - 2024.06.08 - PC

- Use "Apply" FB

S03V00R00 - 2024.07.10 - PC

- New structure with enumeration.
- Update FL system for new structure.
- Add comment

- Use ENO to show if it's displayed

S02V00R00 - 2023.11.14 - PC

- Update with namespace

S01V00R00 - 2020.12.04 - PC

- Patch auto-reset of command

Set order

