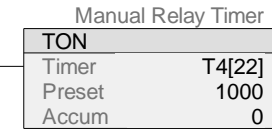


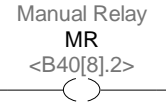
3

### MANUAL MODE LOGIC

System Mode Manual  
**SMM**  
<Local:1:I.Pt02.Data>



Manual Relay Timer  
Done  
**MRT\_DN**  
<T4[22].DN>



4

### START/RESTART LOGIC

System Auto  
Start/Restart  
**SASR**  
<Local:1:I.Pt04.Data>

Auto Relay  
**AR**  
<B40[7].8>

System Purge Timer  
Enable  
**SPT\_EN**  
<T4[23].EN>

System Ready Relay  
**SRR**  
<B40[8].14>

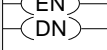
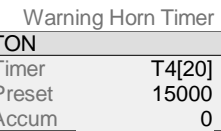
Gate Position/Zero  
Speed Relay  
**GPZSR**  
<B40[9].6>

Unloading Feeder  
Running Relay  
**UFRR**  
<B40[5].3>

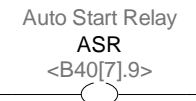
Reclaim Feeder Run  
Relay  
**RFRR**  
<B40[4].10>

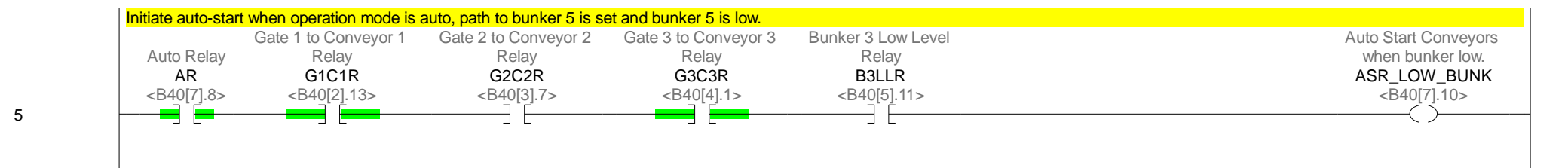
Auto Start Conveyors  
when bunker low.  
**ASR\_LOW\_BUNK**  
<B40[7].10>

Warning Horn Timer  
Done  
**WHT\_DN**  
<T4[20].DN>



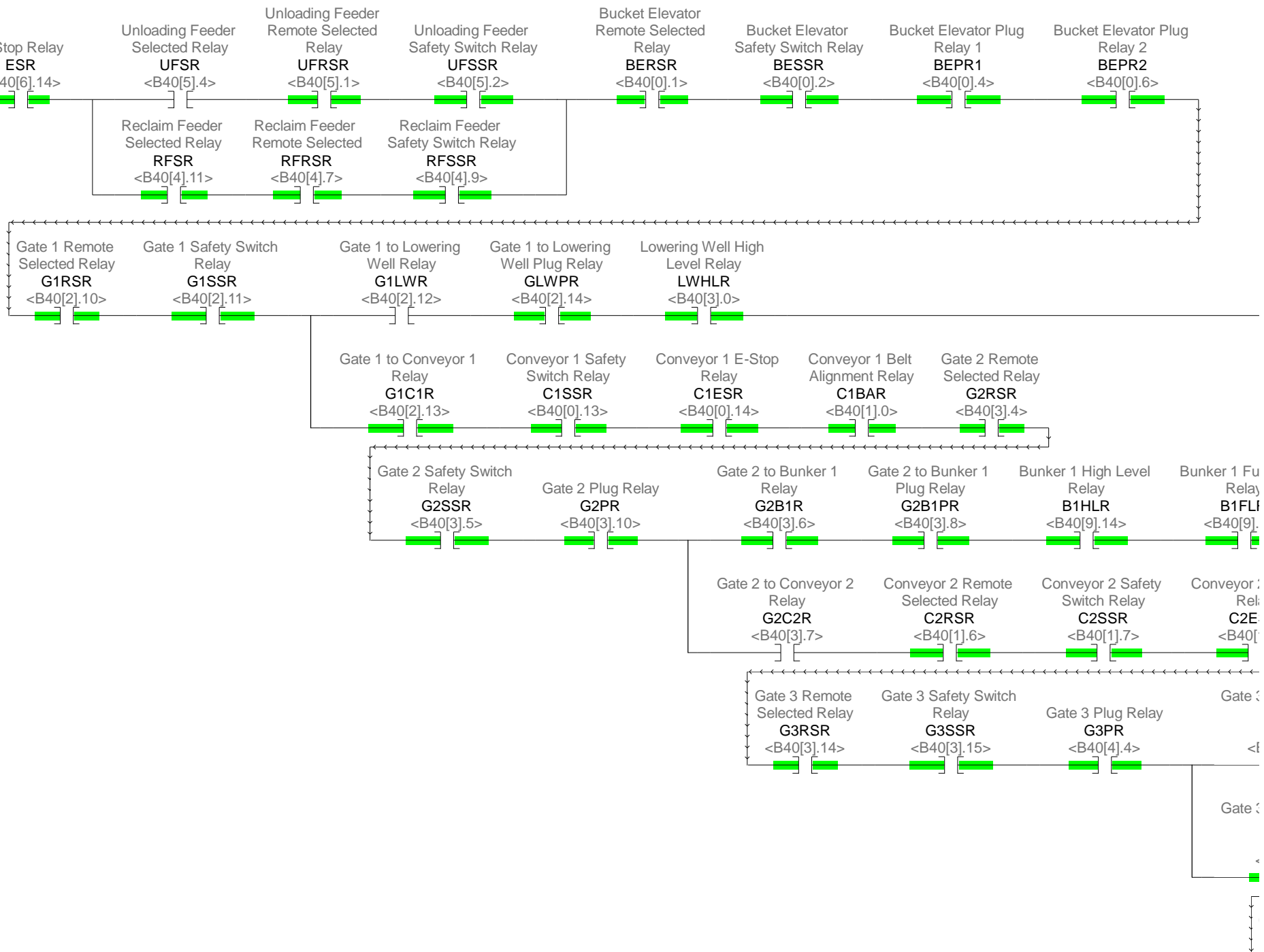
Warning Horn Timer  
Done  
**WHT\_DN**  
<T4[20].DN>





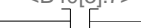
SYSTEM READY LOGIC

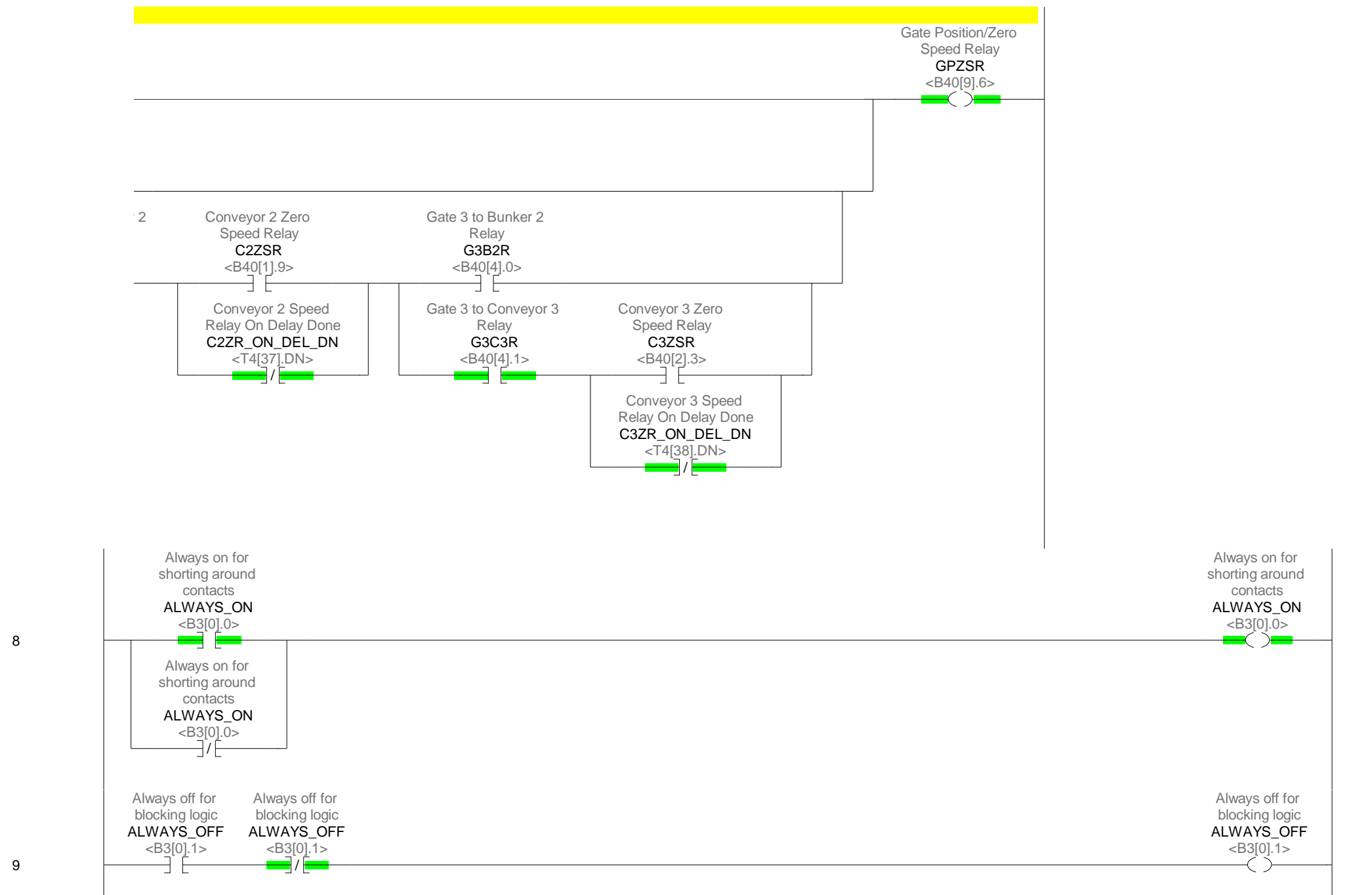
6





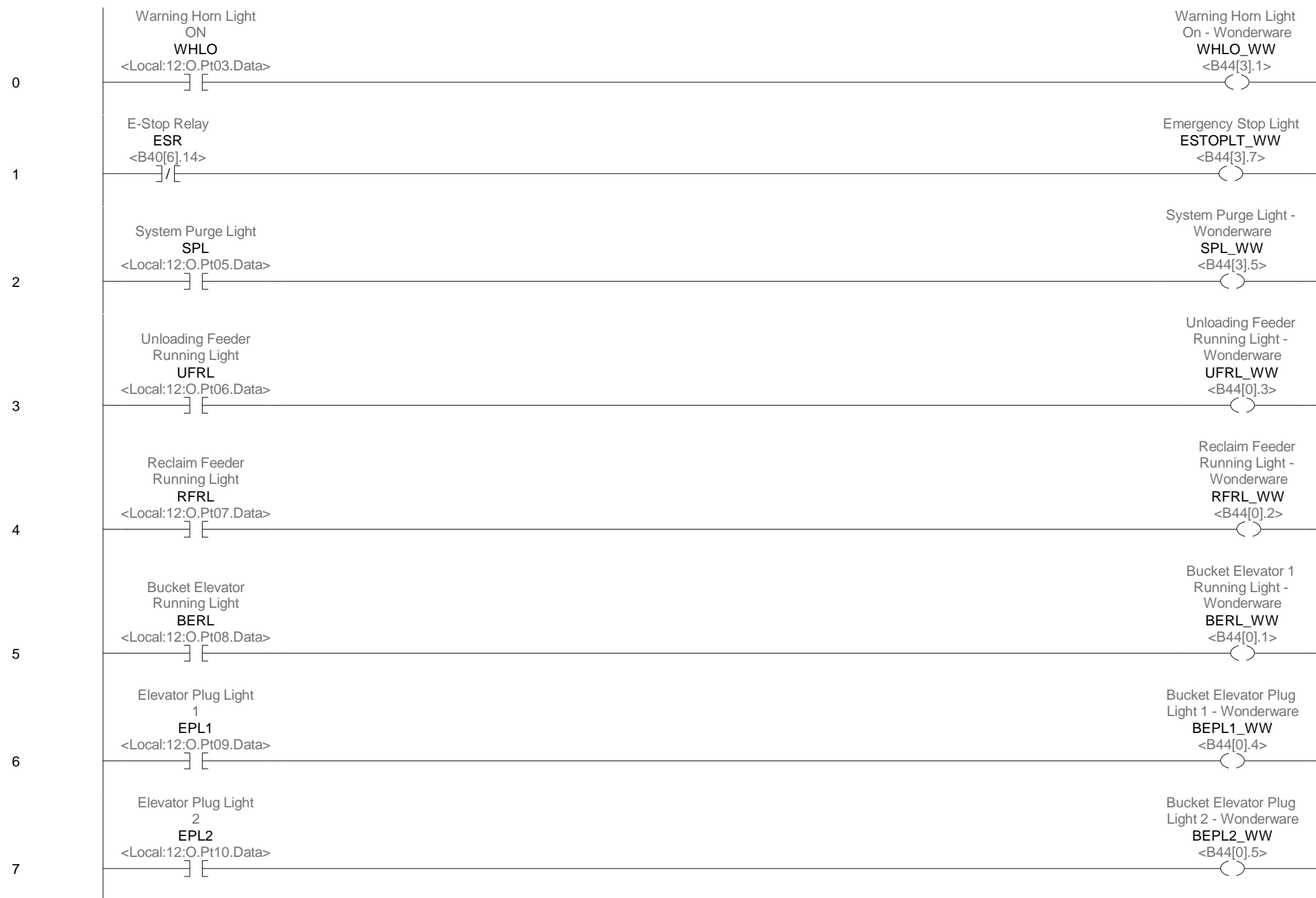




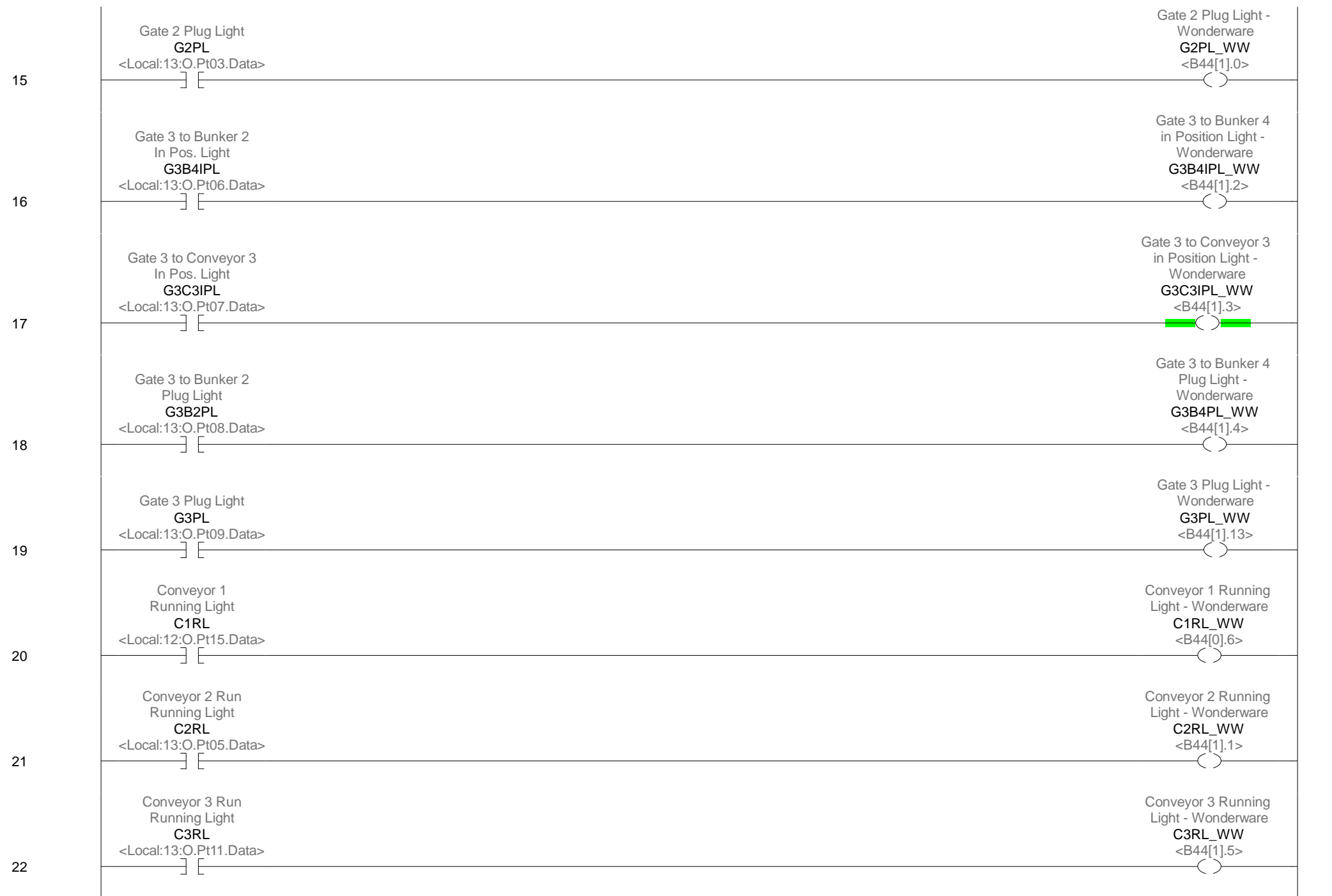




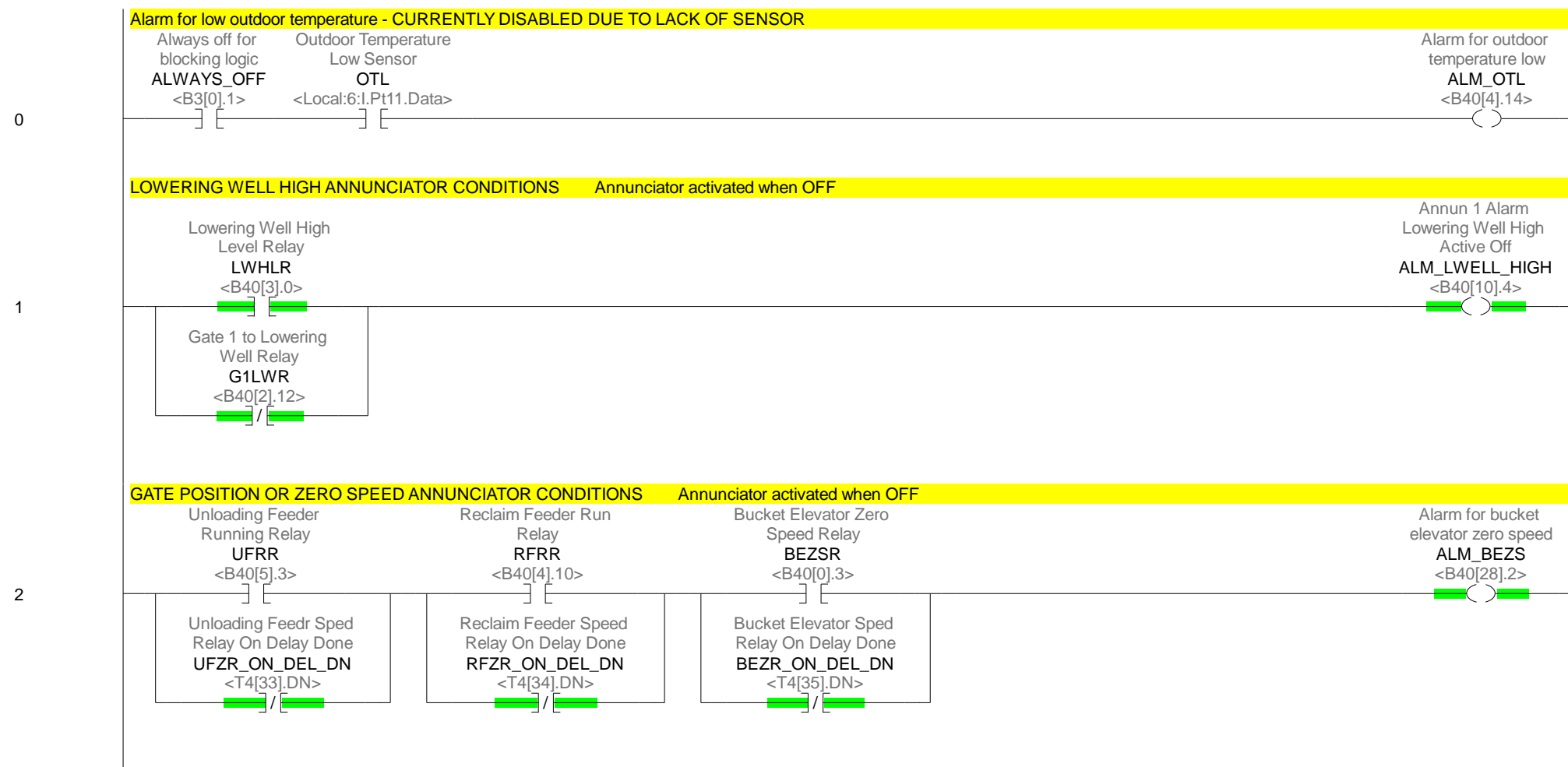


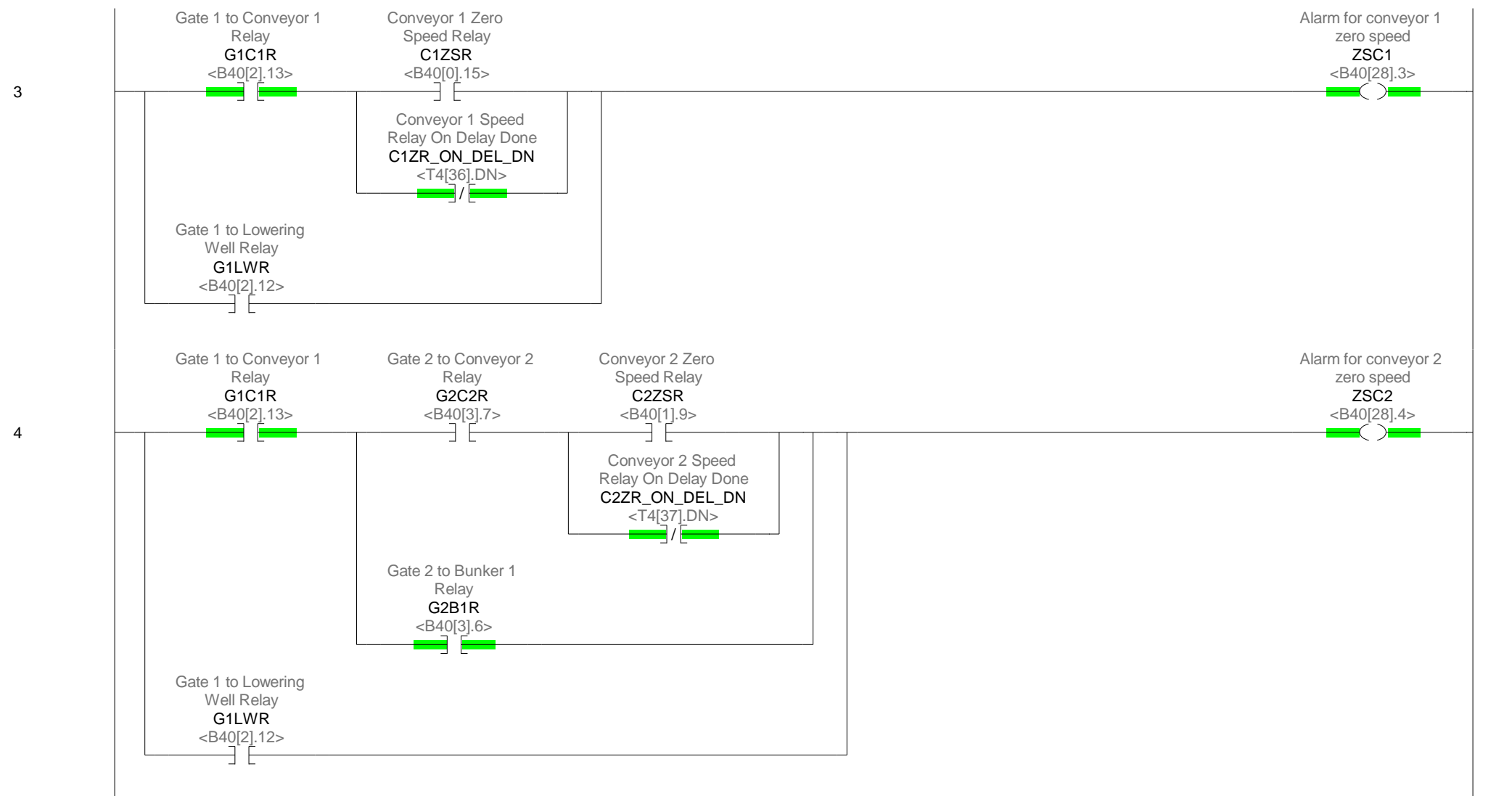




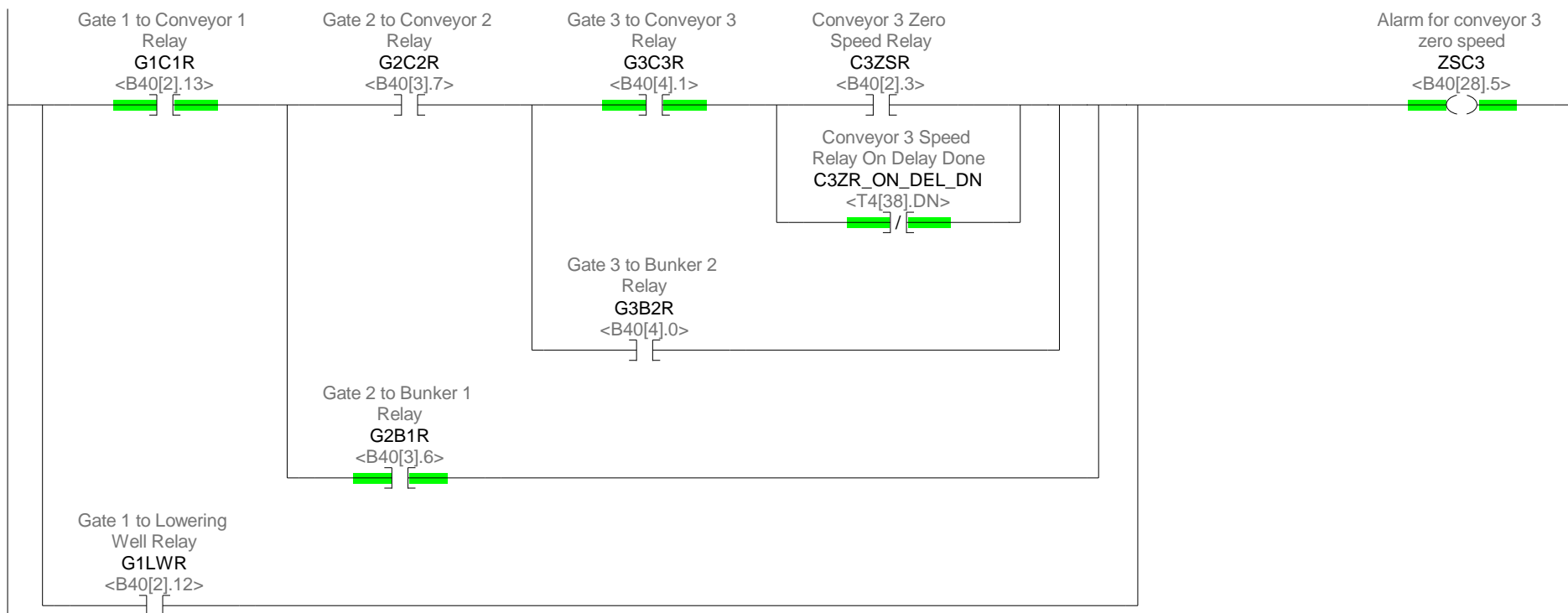






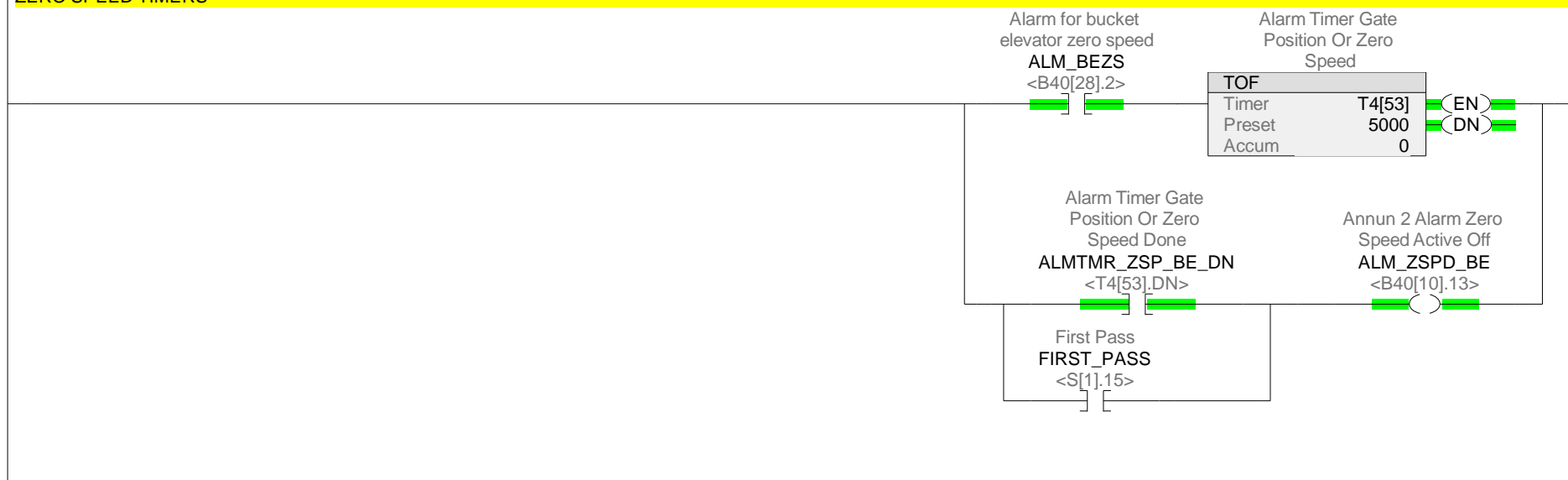


5



# ZERO SPEED TIMERS

6





7

Alarm for conveyor 1  
zero speed  
ZSC1

<B40[28].3>

Alarm timer for zero  
speed for conveyor 1

TOF	
Timer	T100[12]
Preset	5000
Accum	0

EN  
DN

Done  
ALMTMR\_ZSP\_C1\_DN  
<T100[12].DN>

Alarm for zero speed  
for conveyor 1  
ALM\_ZSPD\_C1

<B40[28].8>

First Pass  
FIRST\_PASS  
<S[1].15>

8

Alarm for conveyor 2  
zero speed  
ZSC2

<B40[28].4>

Alarm timer for zero  
speed for conveyor 2

TOF	
Timer	T100[13]
Preset	5000
Accum	0

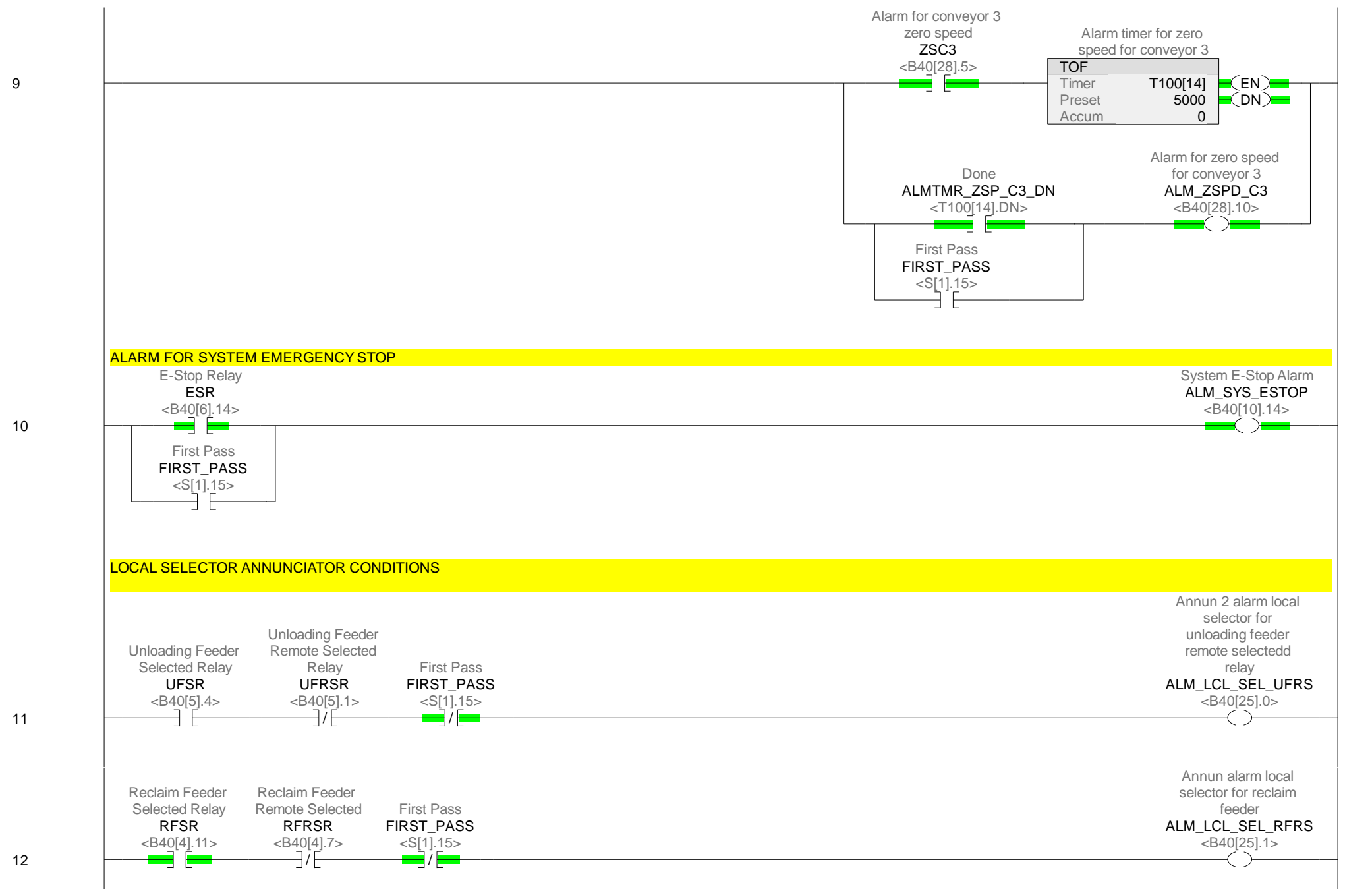
EN  
DN

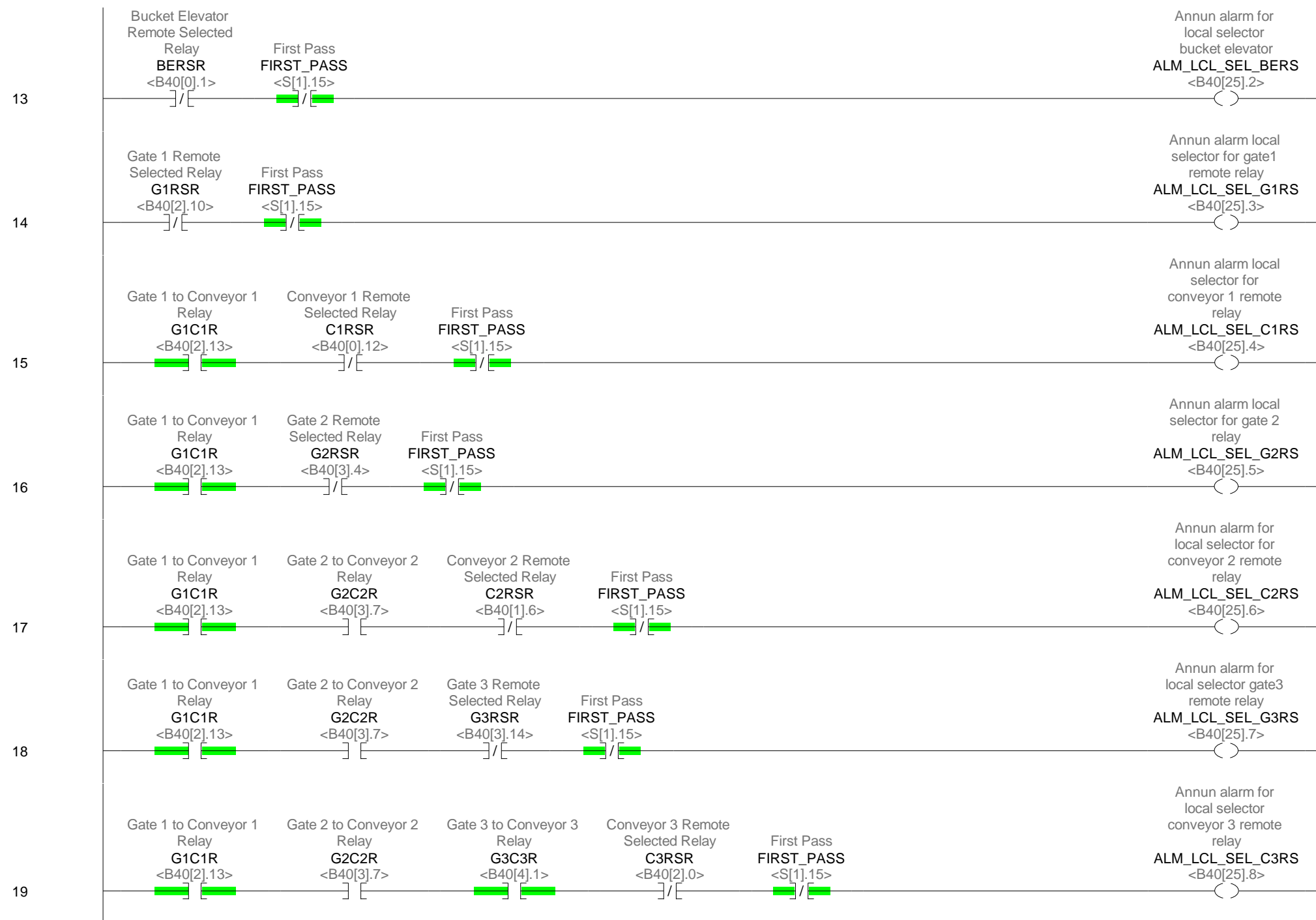
Done  
ALMTMR\_ZSP\_C2\_DN  
<T100[13].DN>

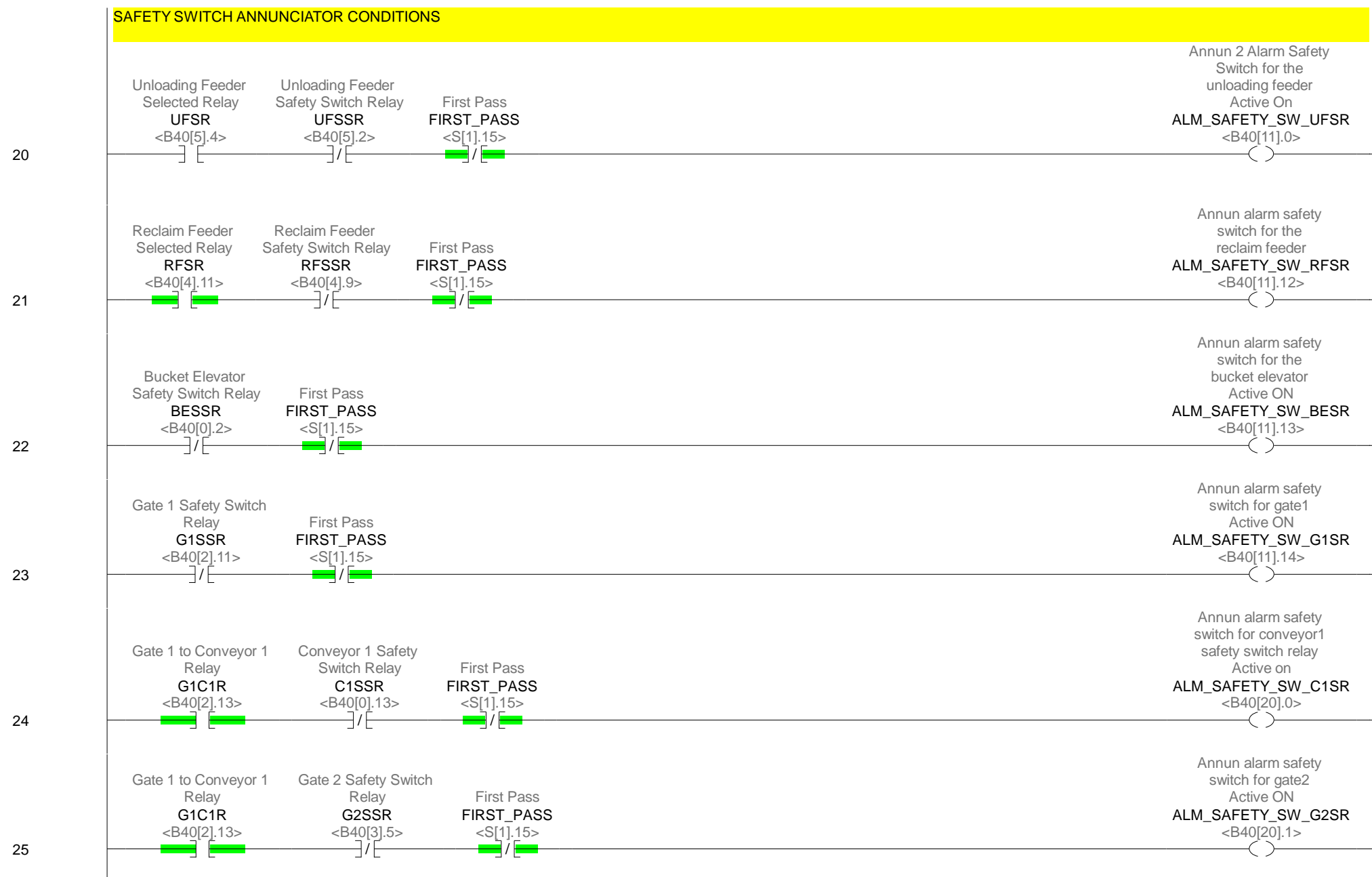
Alarm for zero speed  
for conveyor 2  
ALM\_ZSPD\_C2

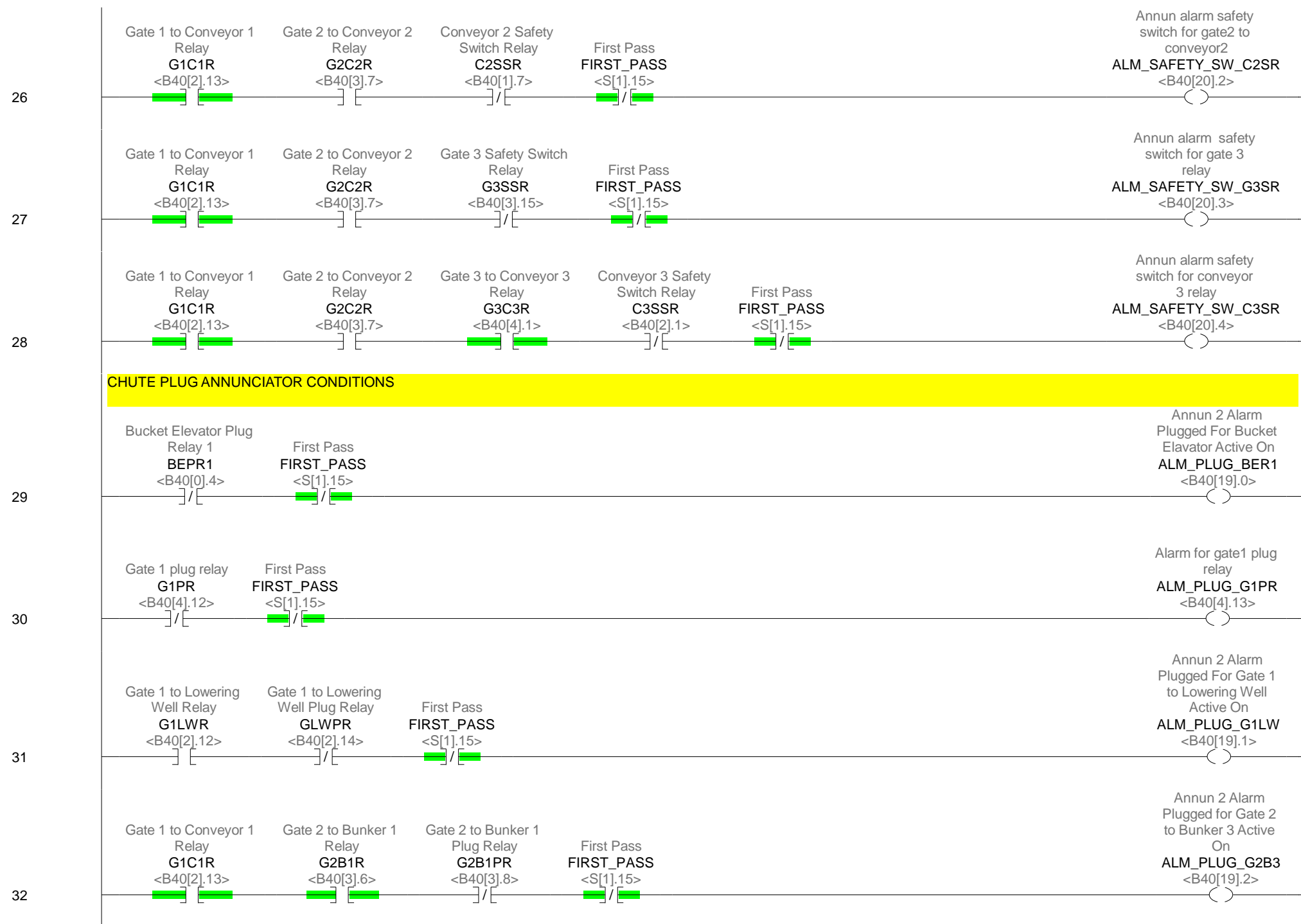
<B40[28].9>

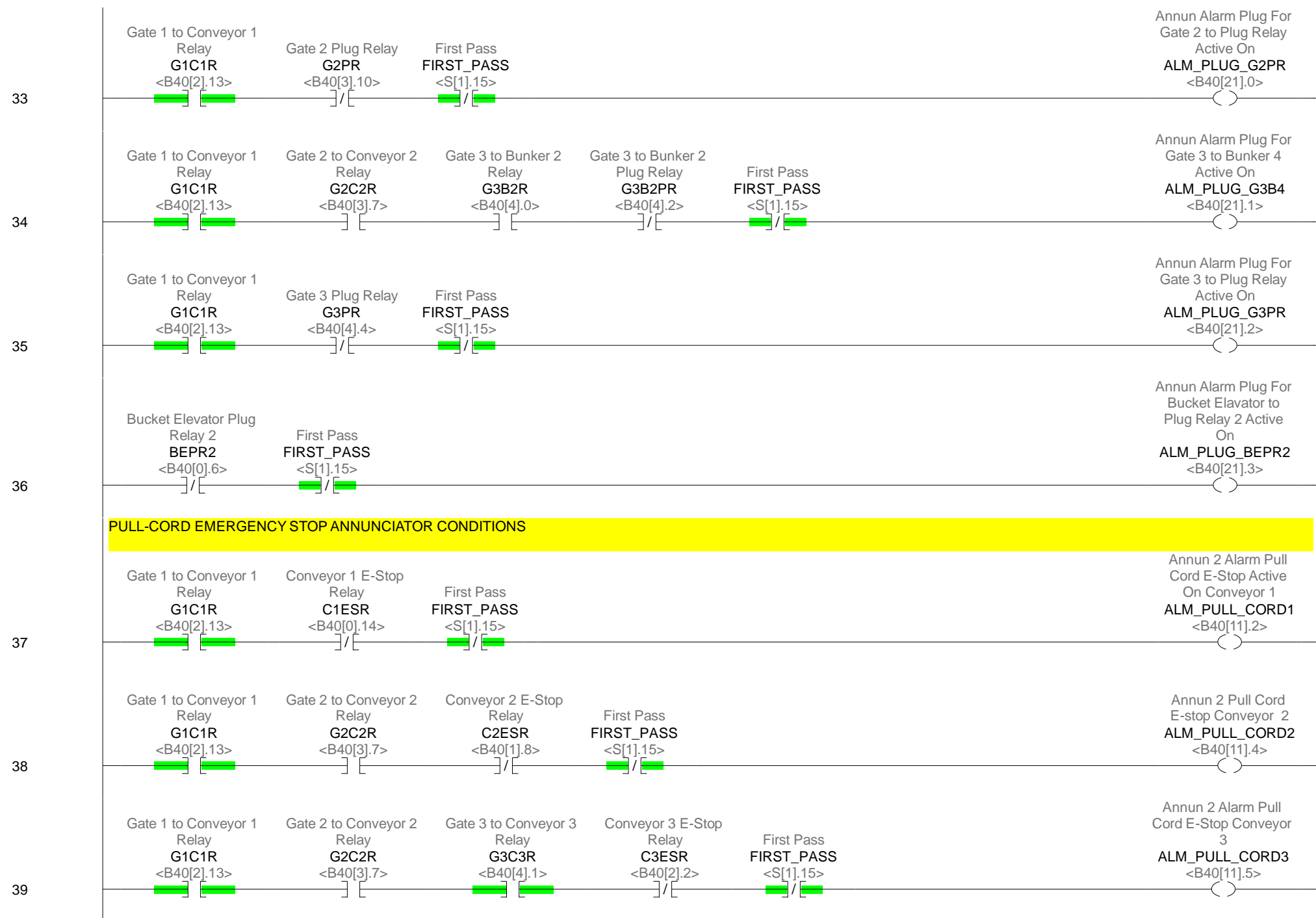
First Pass  
FIRST\_PASS  
<S[1].15>

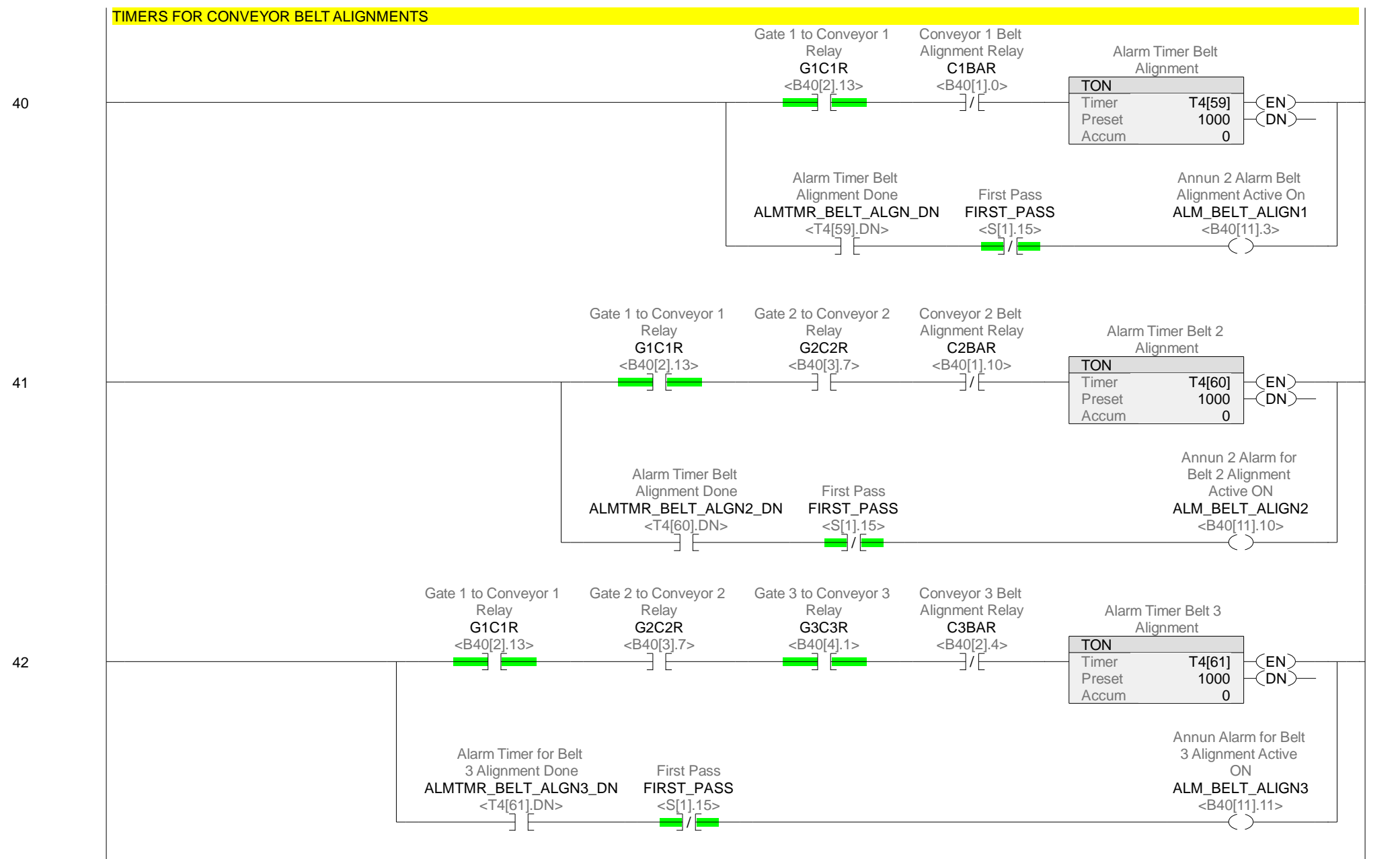












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**TIMERS USED TO GENERATE "FLASH"**

Unacknowledged Alarm  
Flasher 2 Done  
**ALM\_FLASH2\_DN**  
<T4[99].DN>

Unacknowledged Alarm  
Flasher 1

<b>TON</b>	
Timer	T4[98]
Preset	1000
Accum	890

Unacknowledged Alarm  
Flasher 1 Done  
**ALM\_FLASH1\_DN**  
<T4[98].DN>

Unacknowledged Alarm  
Flasher 2

<b>TON</b>	
Timer	T4[99]
Preset	1000
Accum	0

44

**ALARM HANDLING FOR OUTDOOR TEMPERATURE - NOT USED YET**

Always off for  
blocking logic  
**ALWAYS\_OFF**  
<B3[0].1>

Alarm for outdoor  
temperature low  
**ALM\_OTL**  
<B40[4].14>

Alarm lock for  
outdoor temperature  
low  
**ALMLOCK\_OTL**  
<B40[14].12>

Alarm lock for  
outdoor temperature  
low  
**ALMLOCK\_OTL**  
<B40[14].12>

Alarm Acknowledge  
for outdoor  
temperature low  
**ALMACK\_OTL**  
<B40[17].12>

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Alarm Acknowledge  
for outdoor  
temperature low  
**ALMACK\_OTL**  
<B40[17].12>

Alarm lock for  
outdoor temperature  
low  
**ALMLOCK\_OTL**  
<B40[14].12>

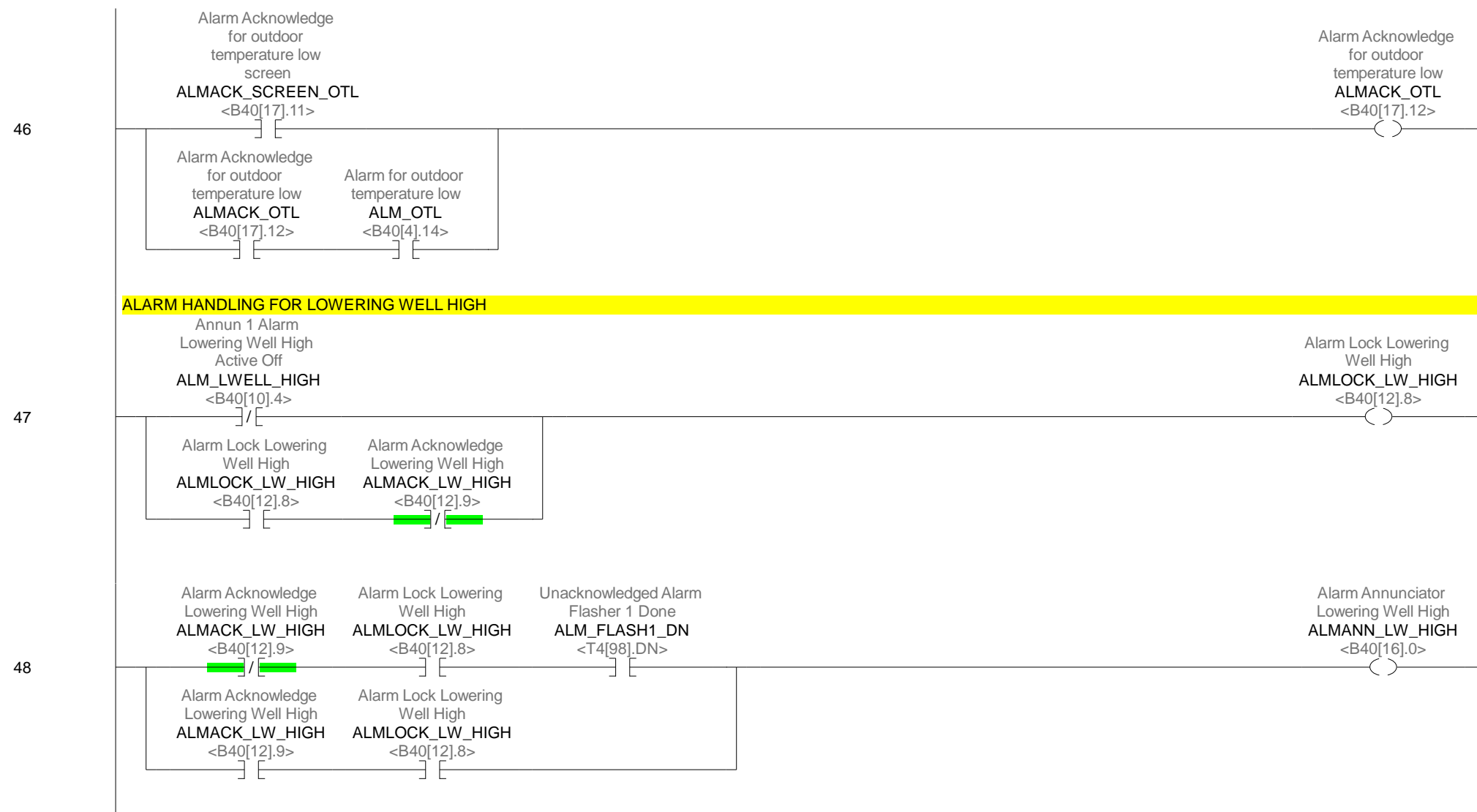
Unacknowledged Alarm  
Flasher 1 Done  
**ALM\_FLASH1\_DN**  
<T4[98].DN>

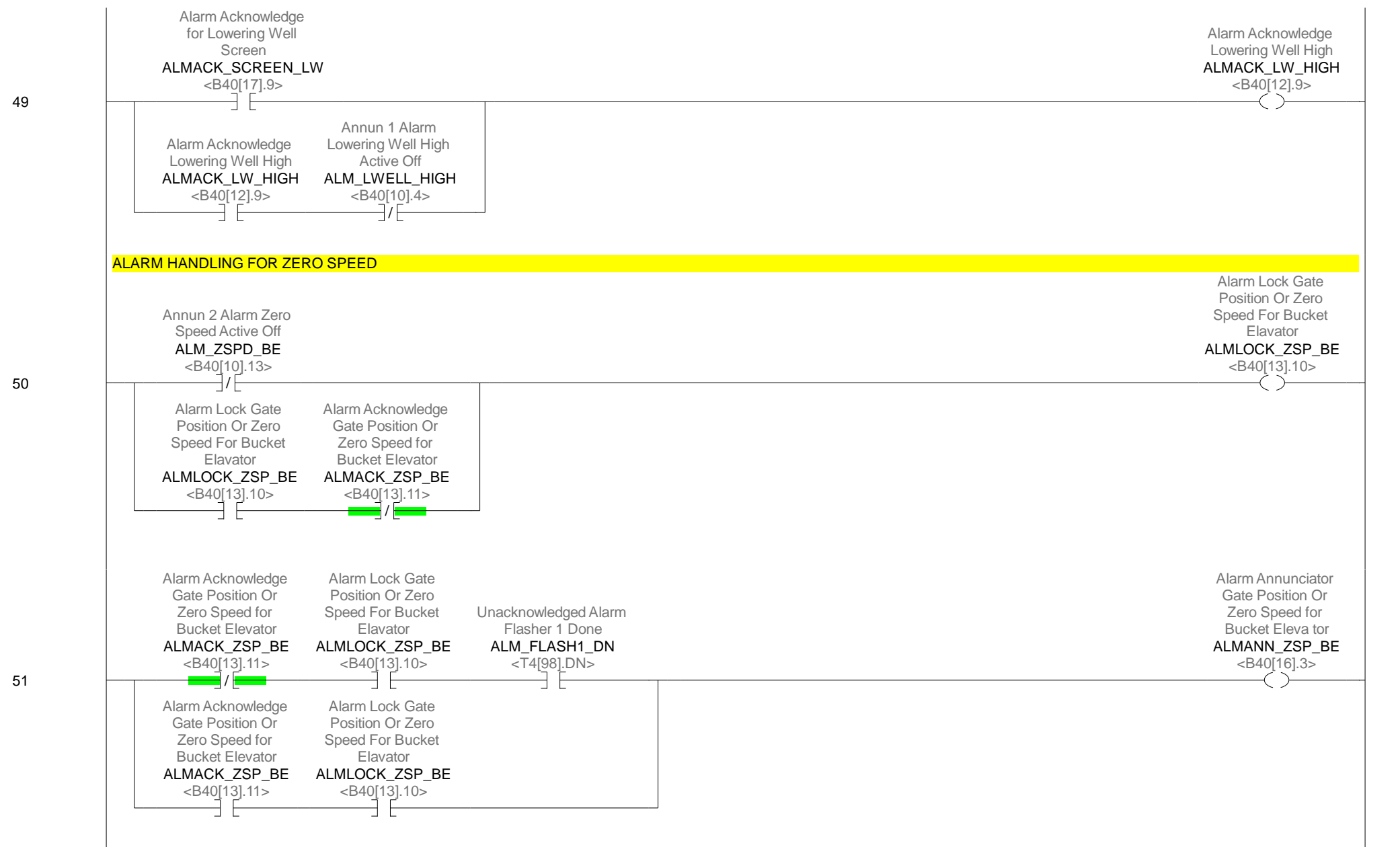
Alarm Annunciator  
for outdoor  
temperature low  
**ALMANN\_OTL**  
<B40[16].1>

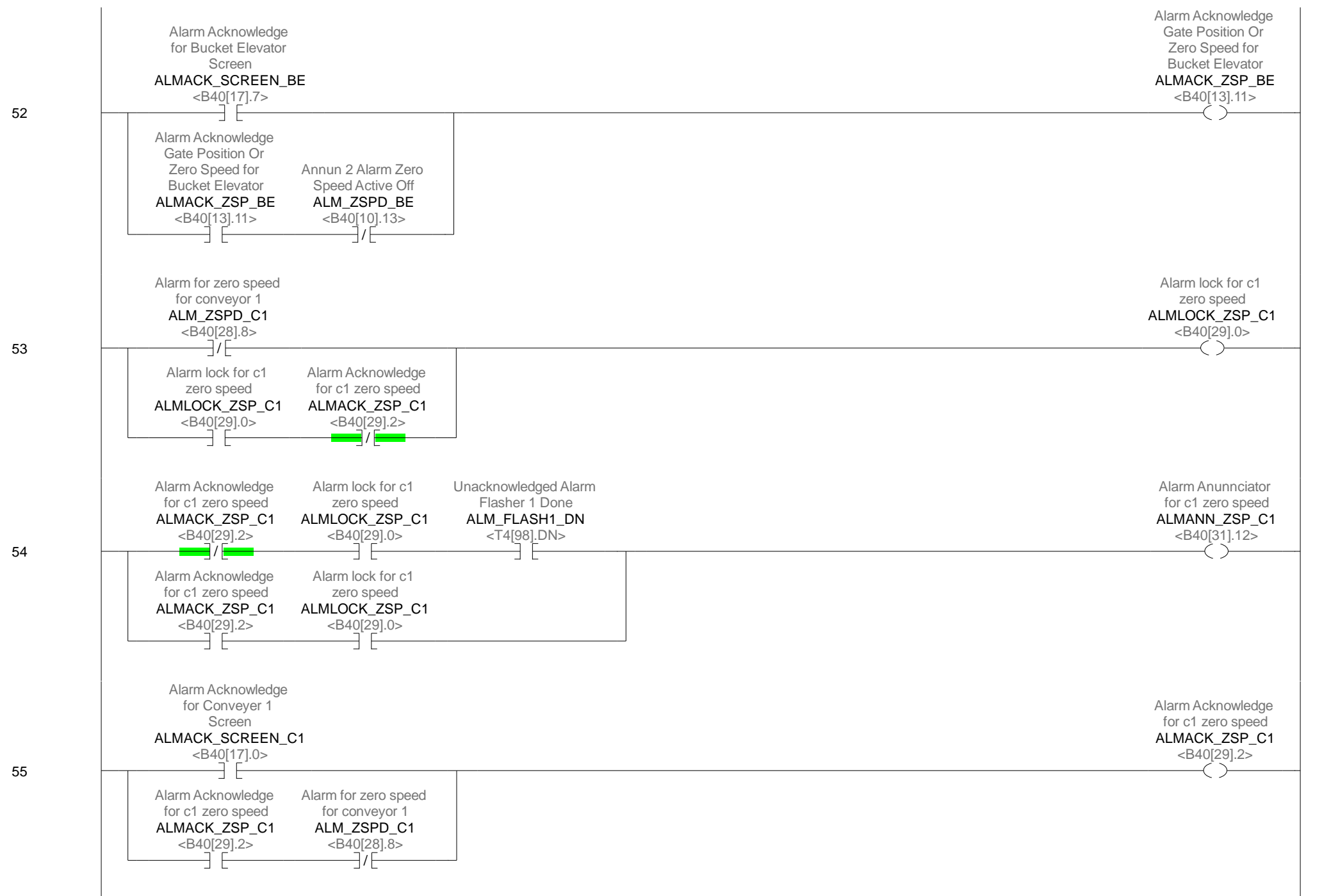
Alarm Acknowledge  
for outdoor  
temperature low  
**ALMACK\_OTL**  
<B40[17].12>

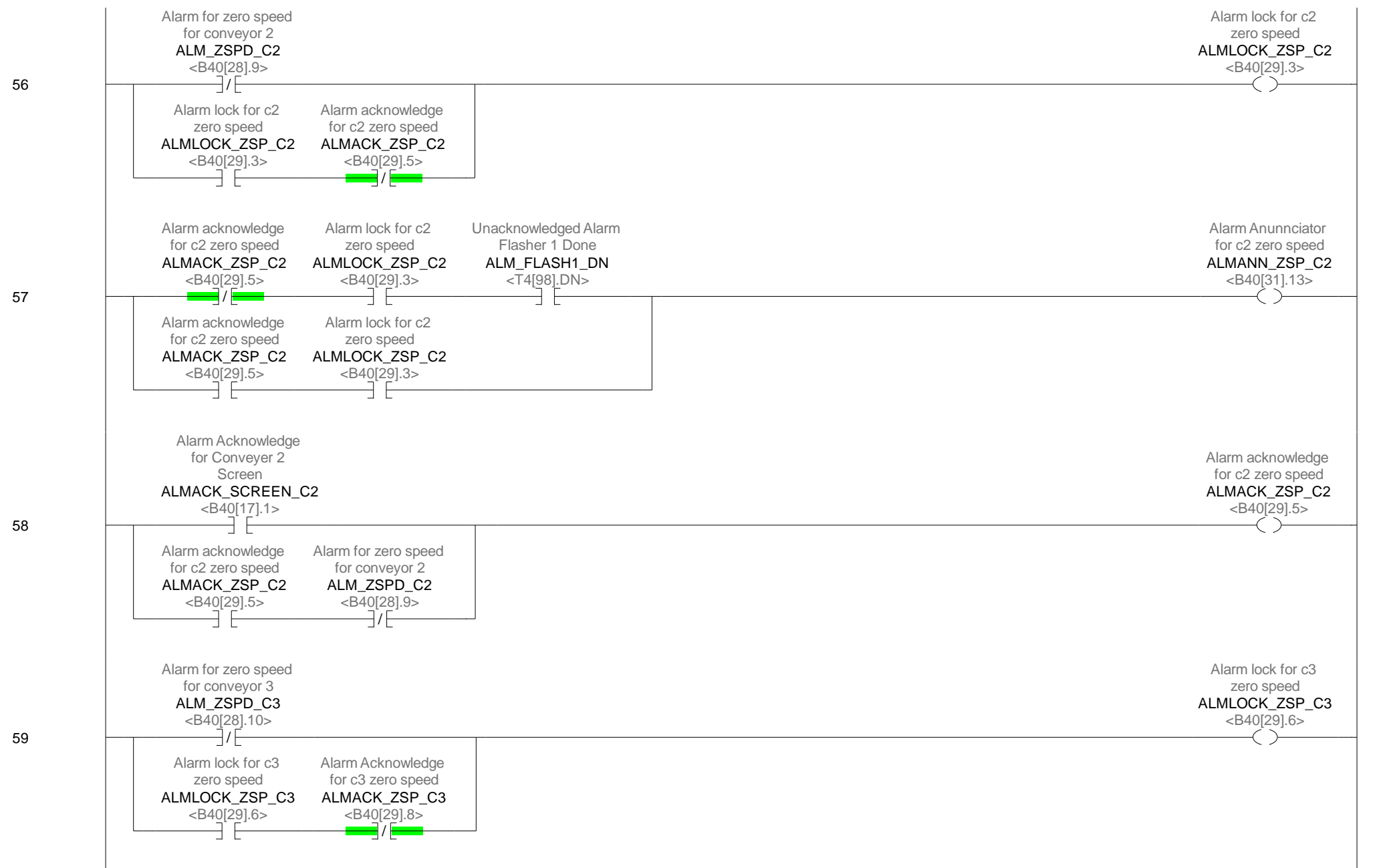
Alarm lock for  
outdoor temperature  
low  
**ALMLOCK\_OTL**  
<B40[14].12>

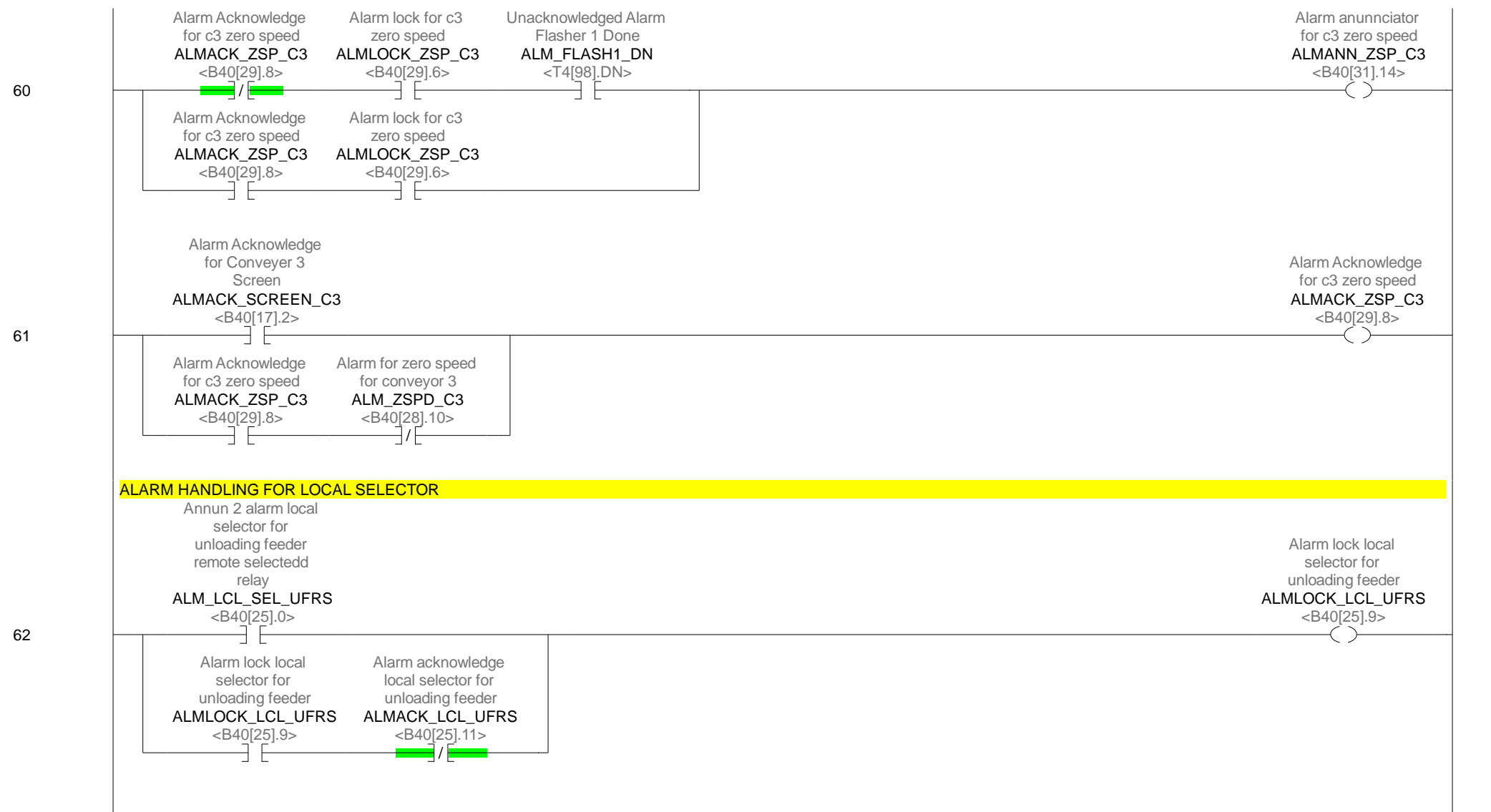


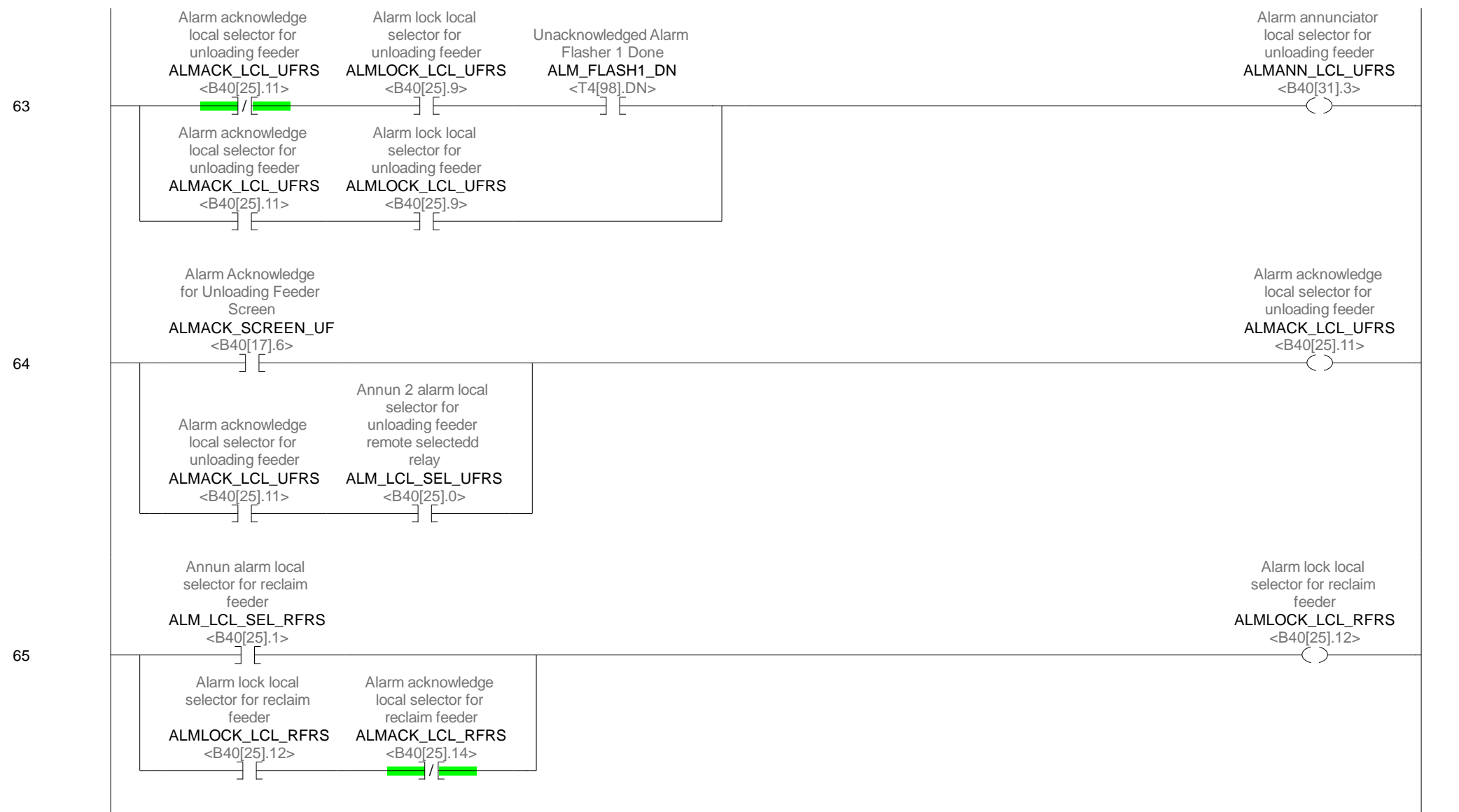


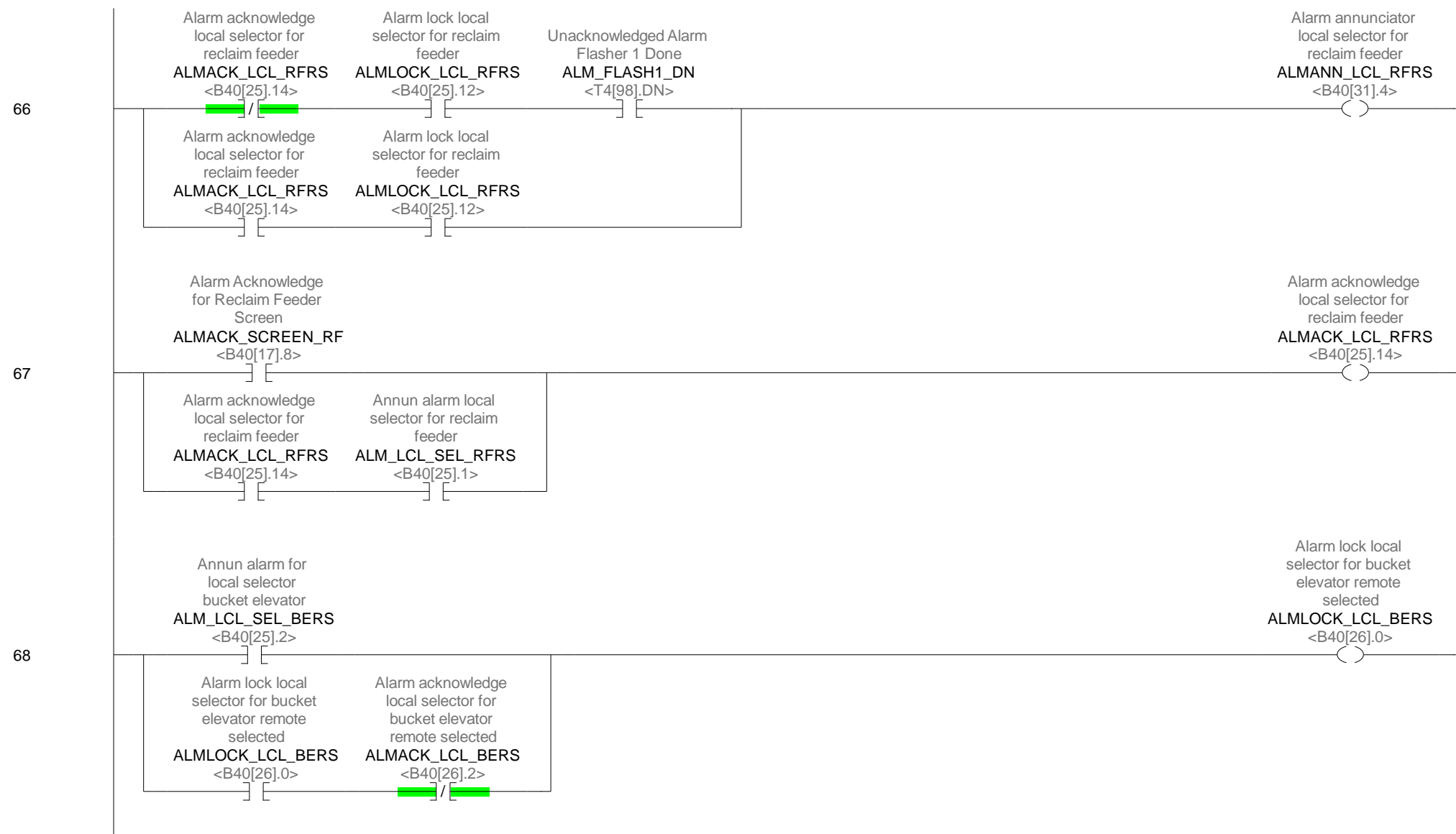


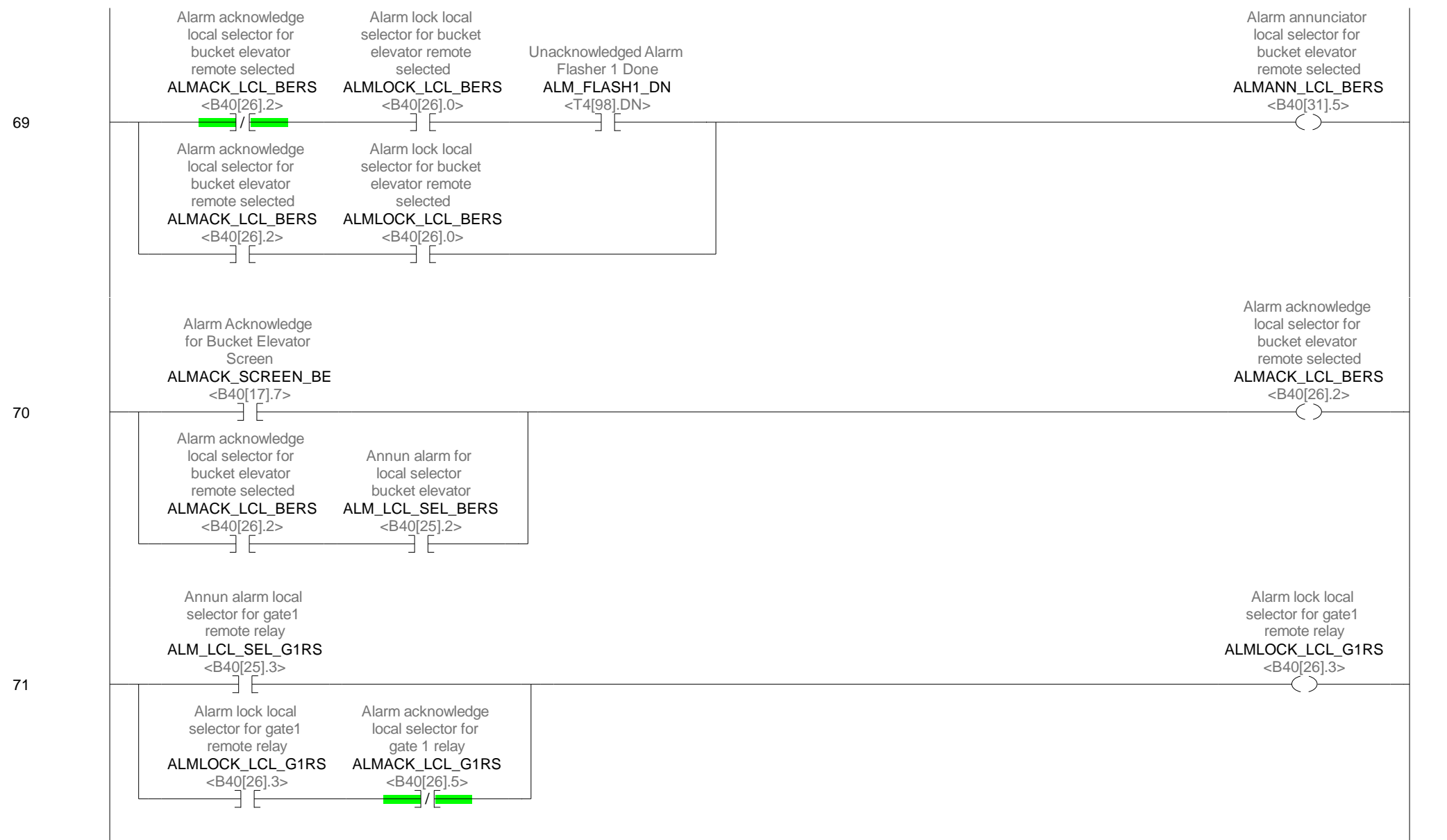




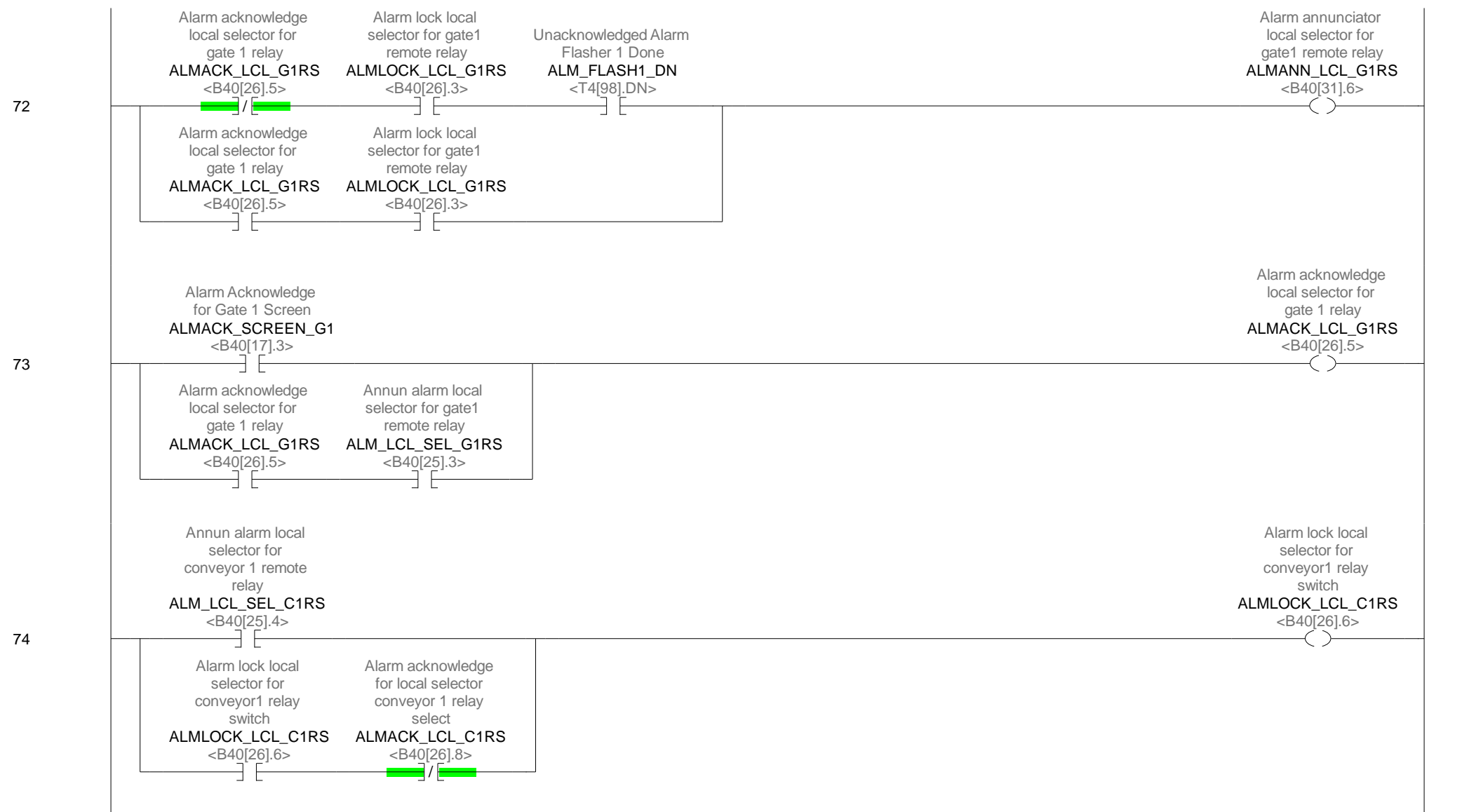


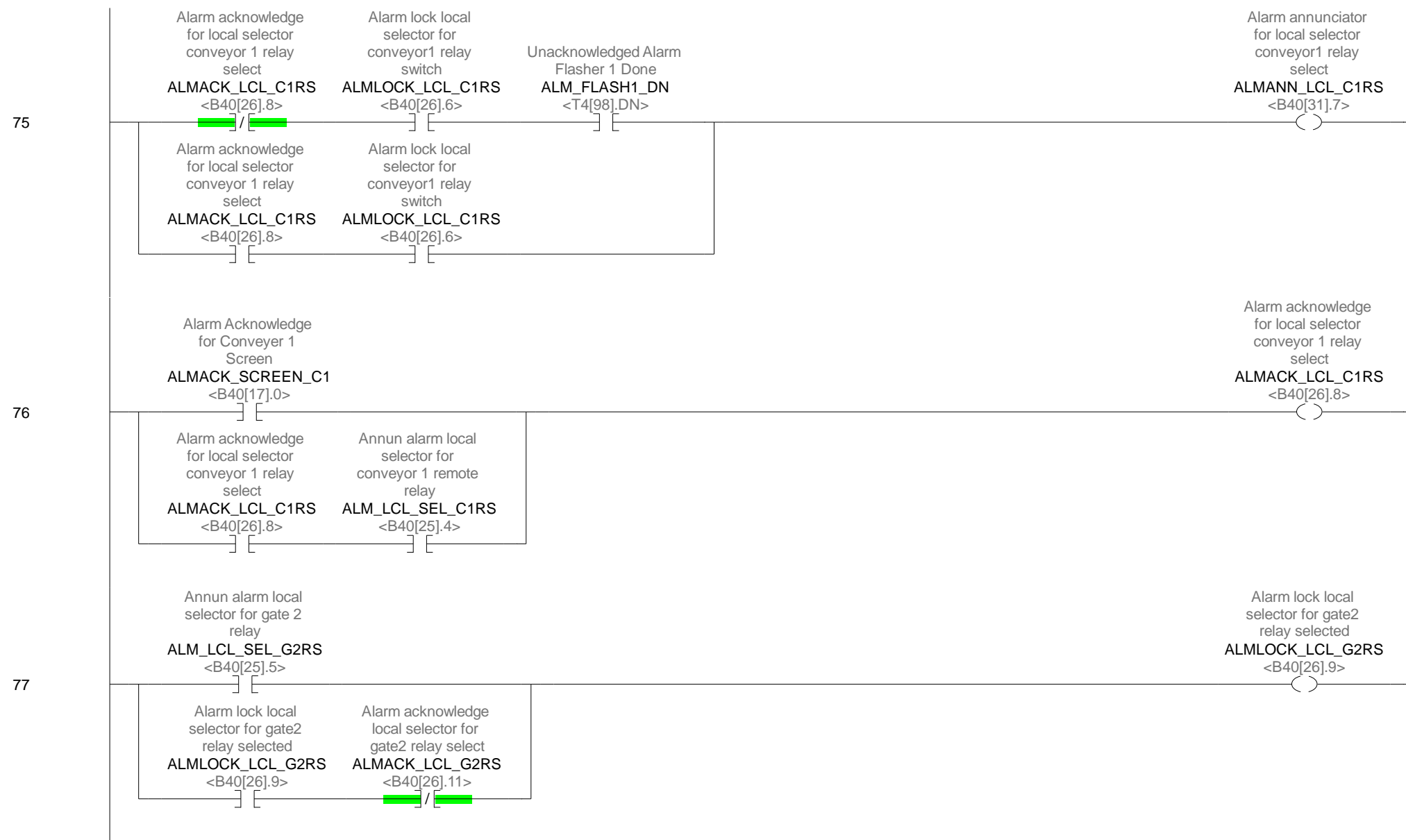


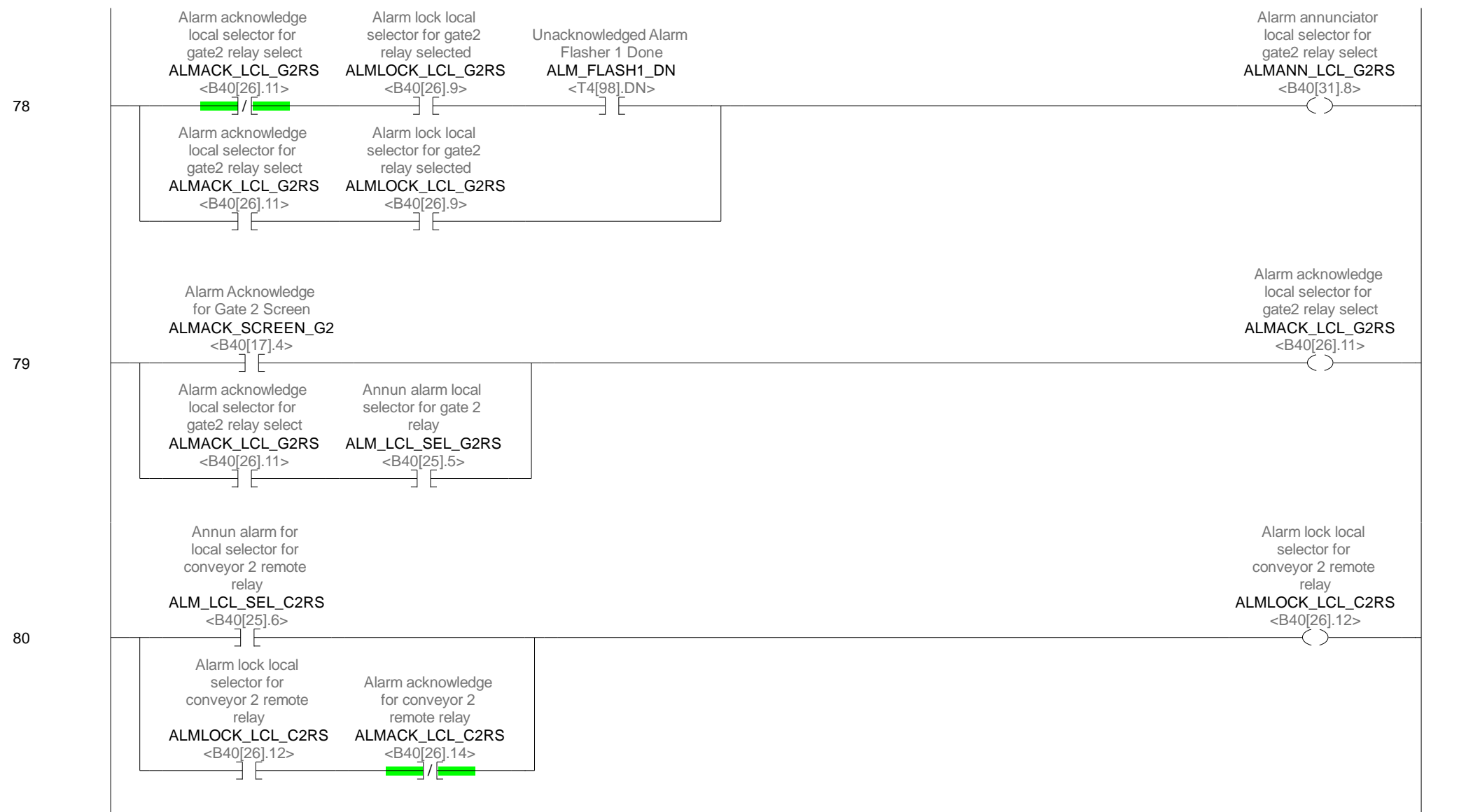


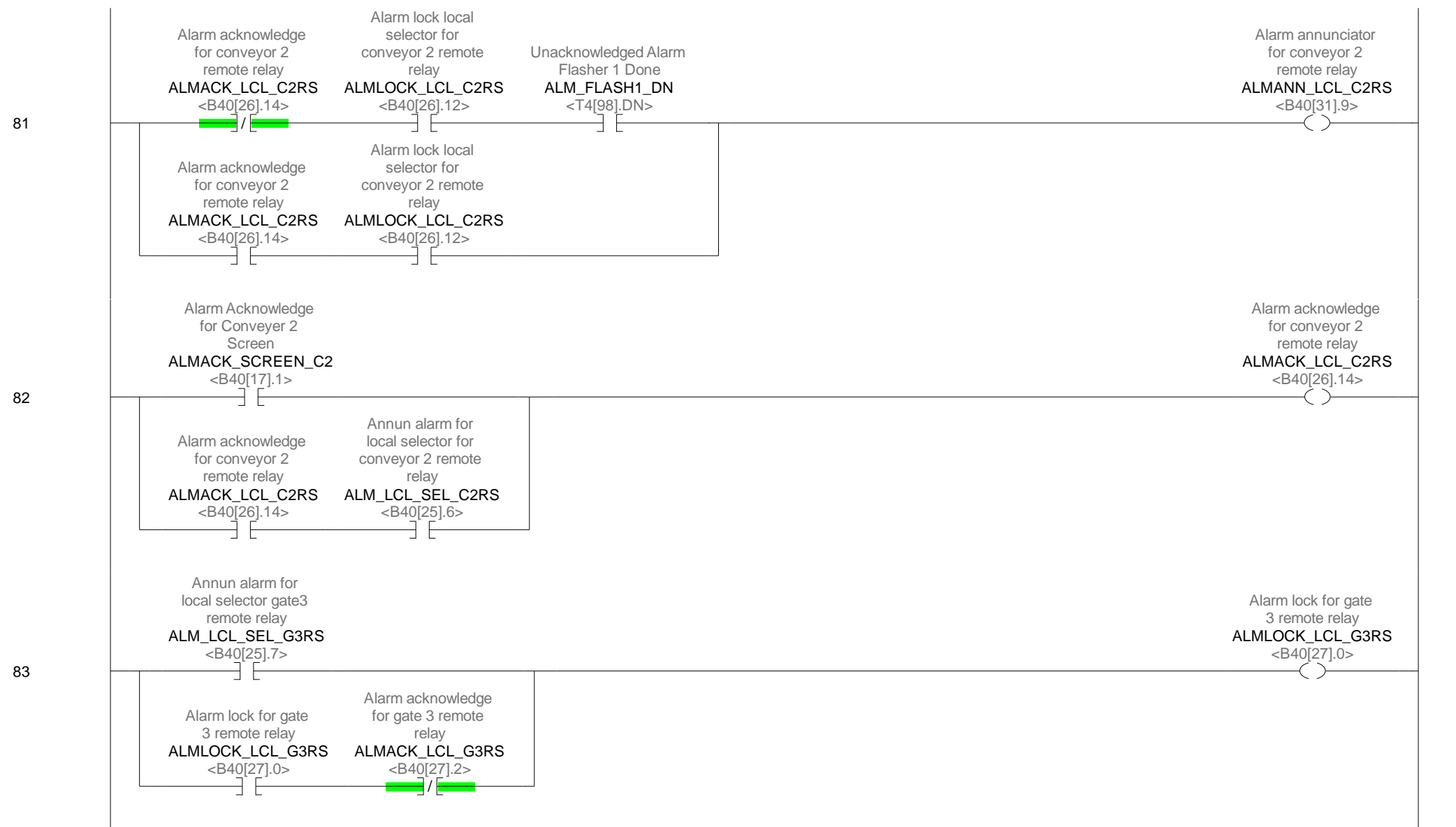


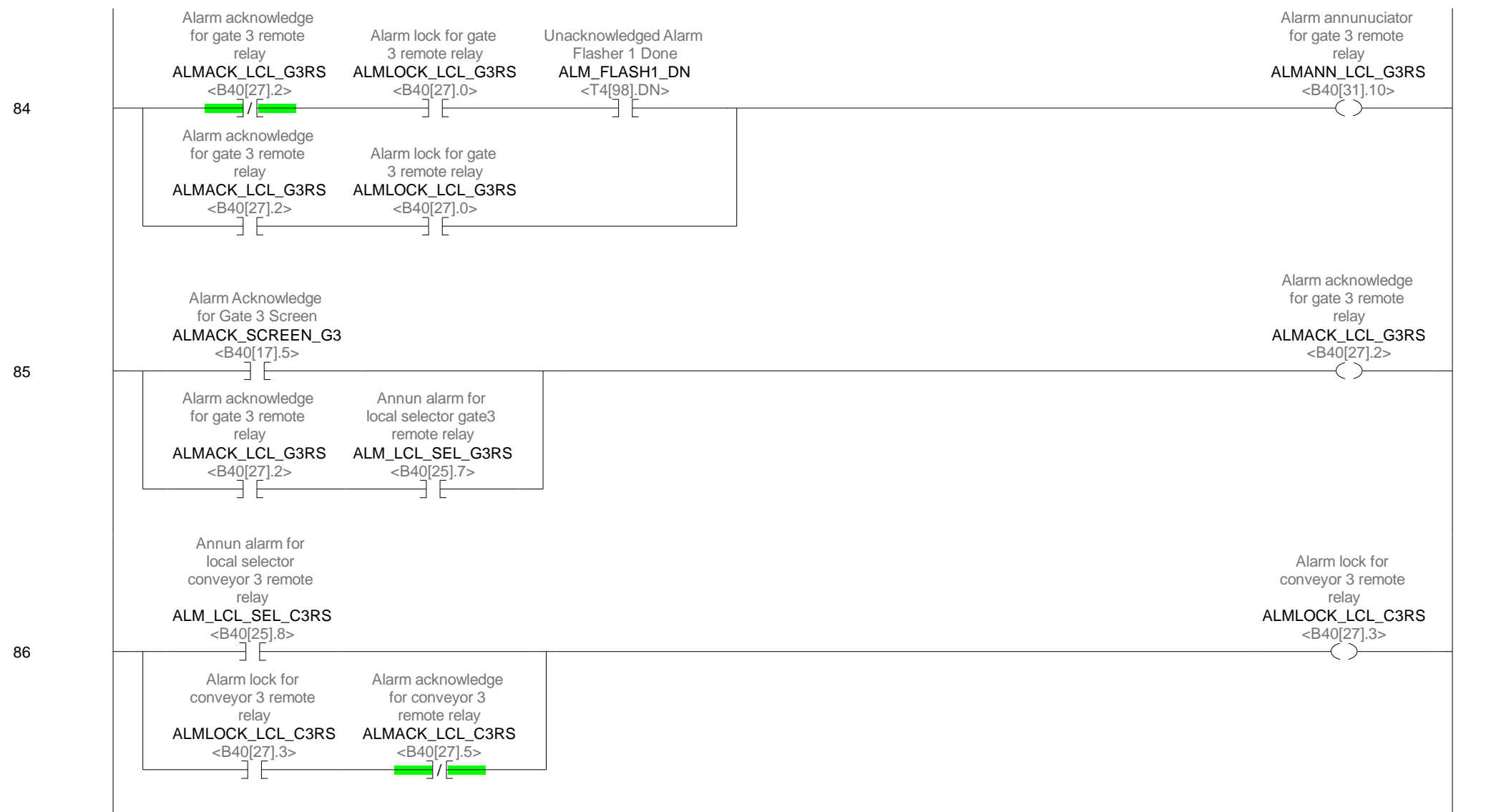


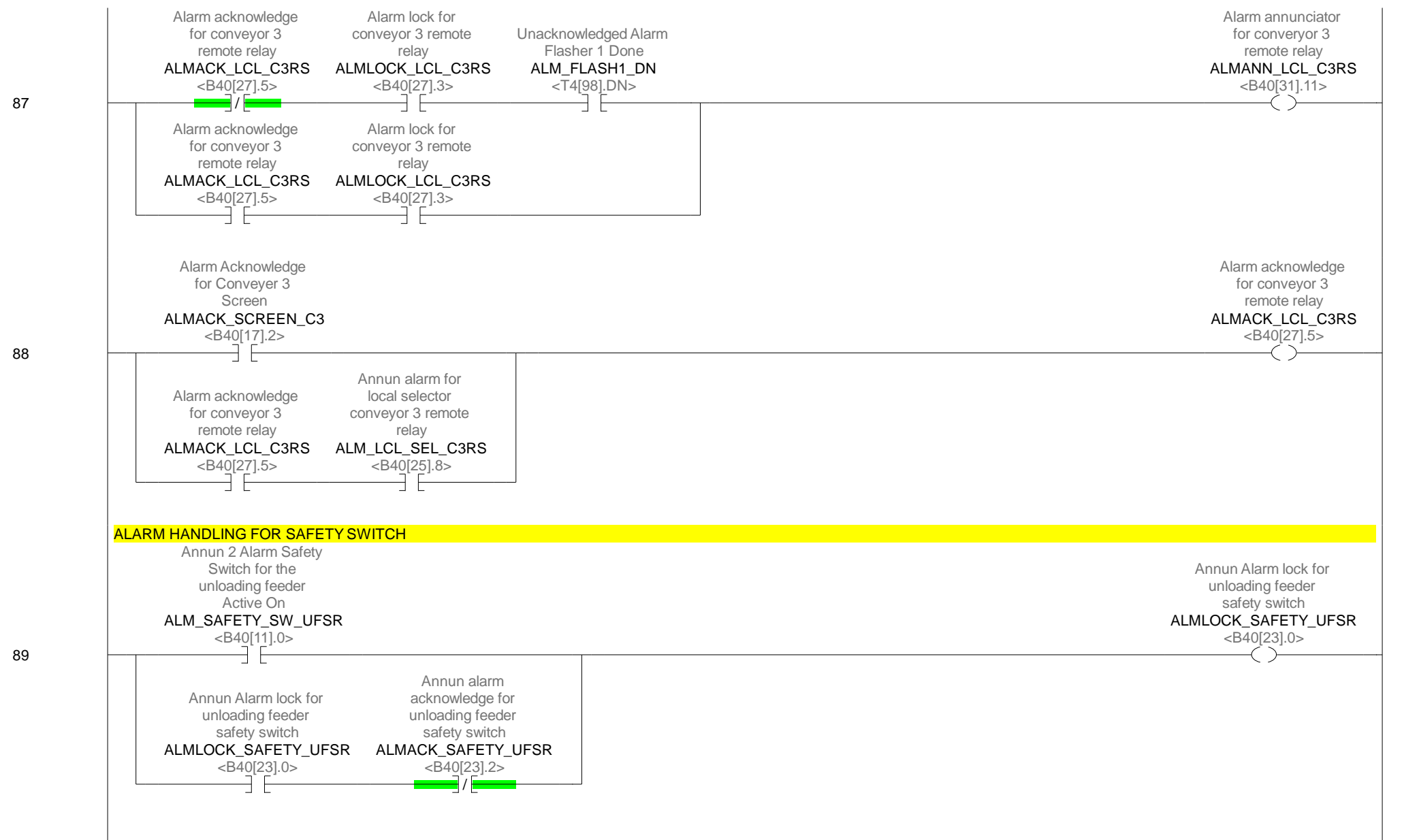


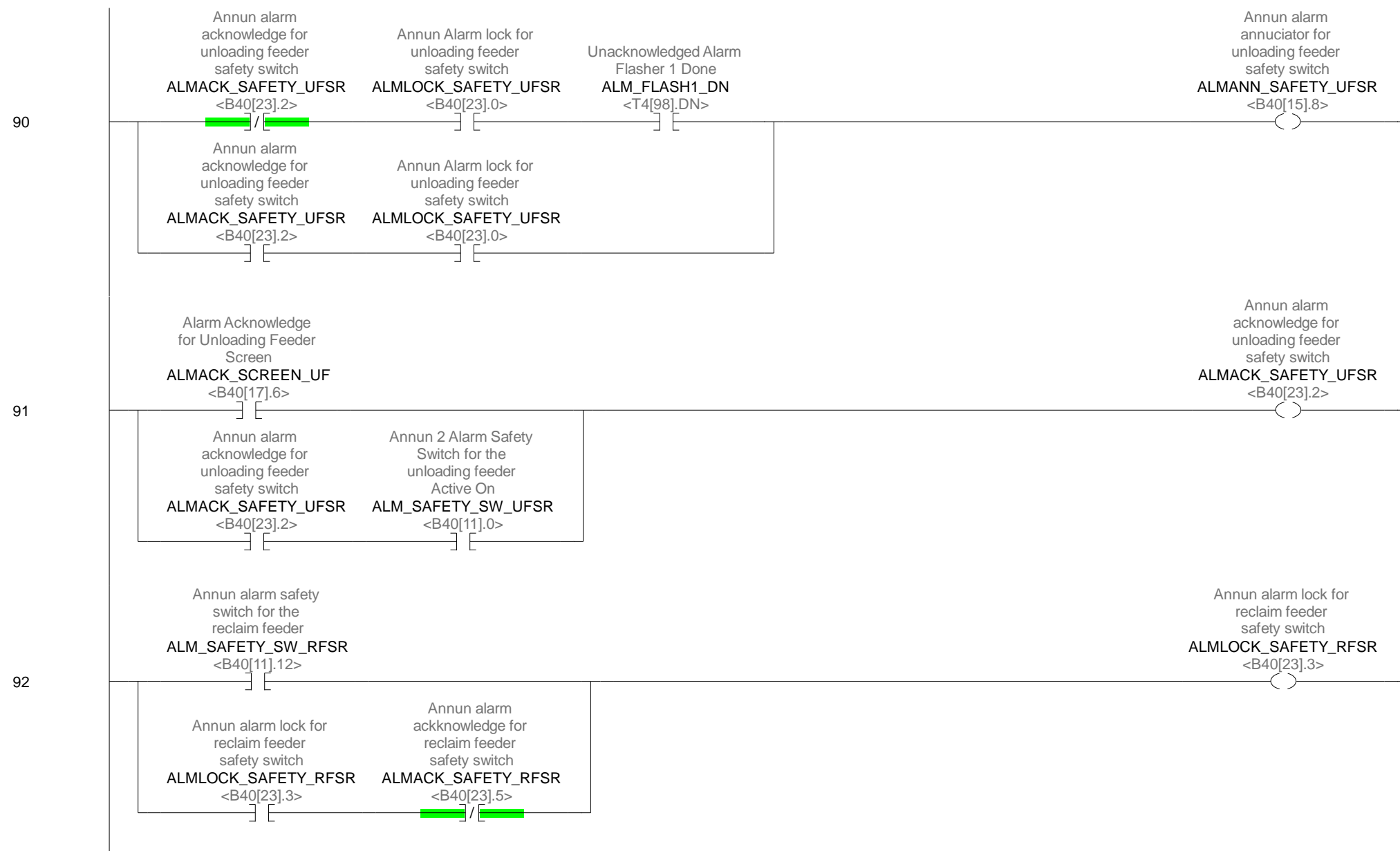


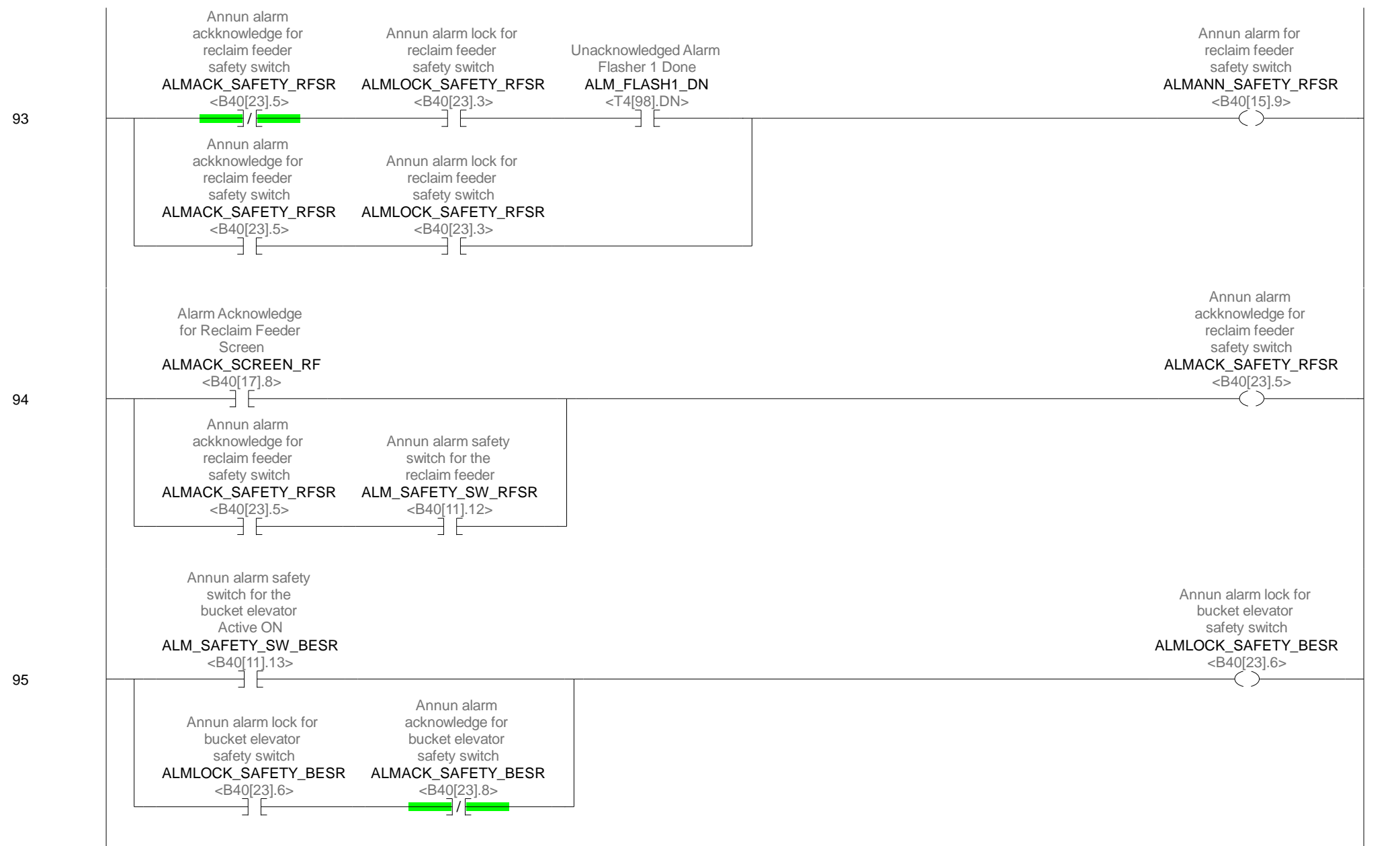




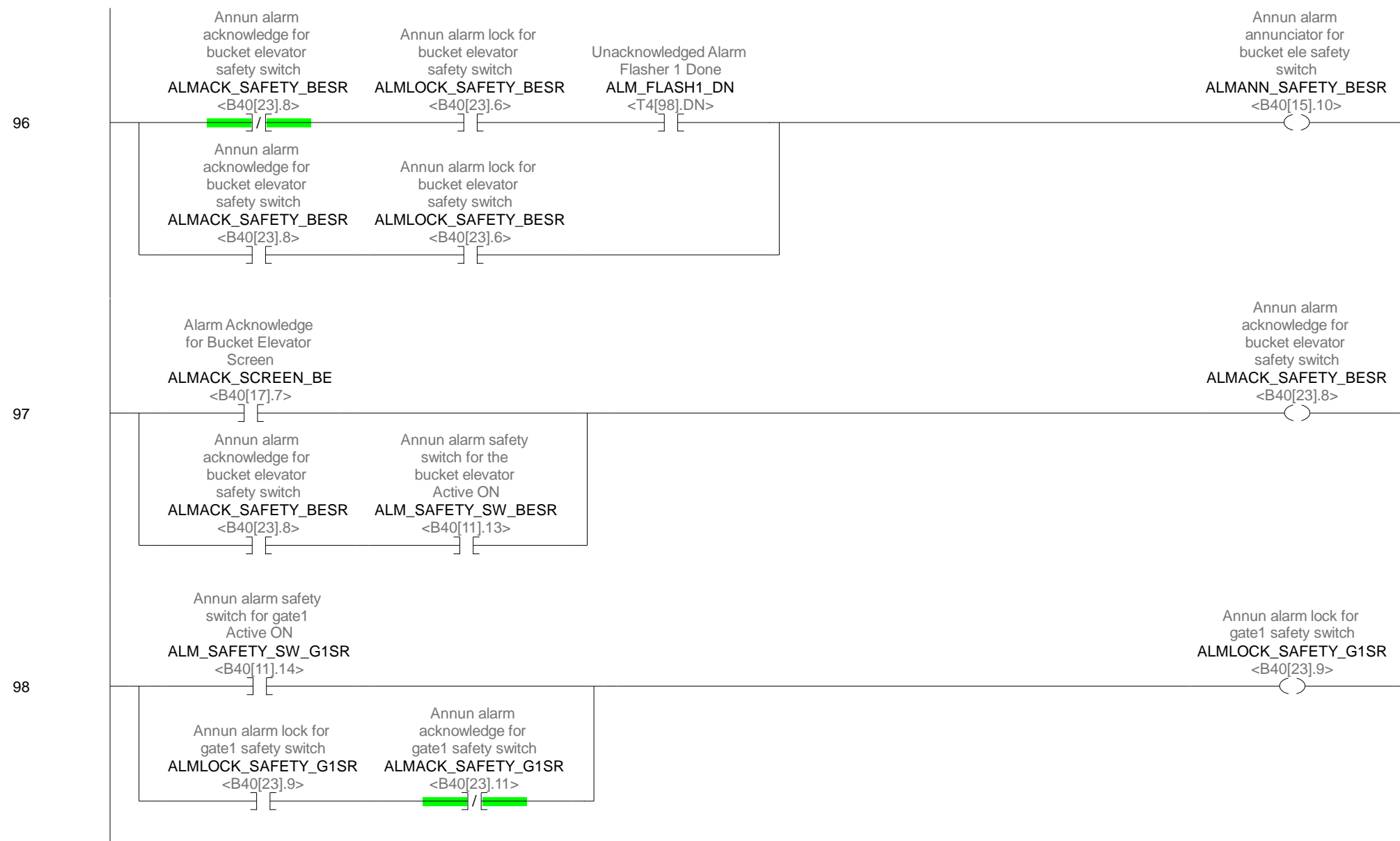


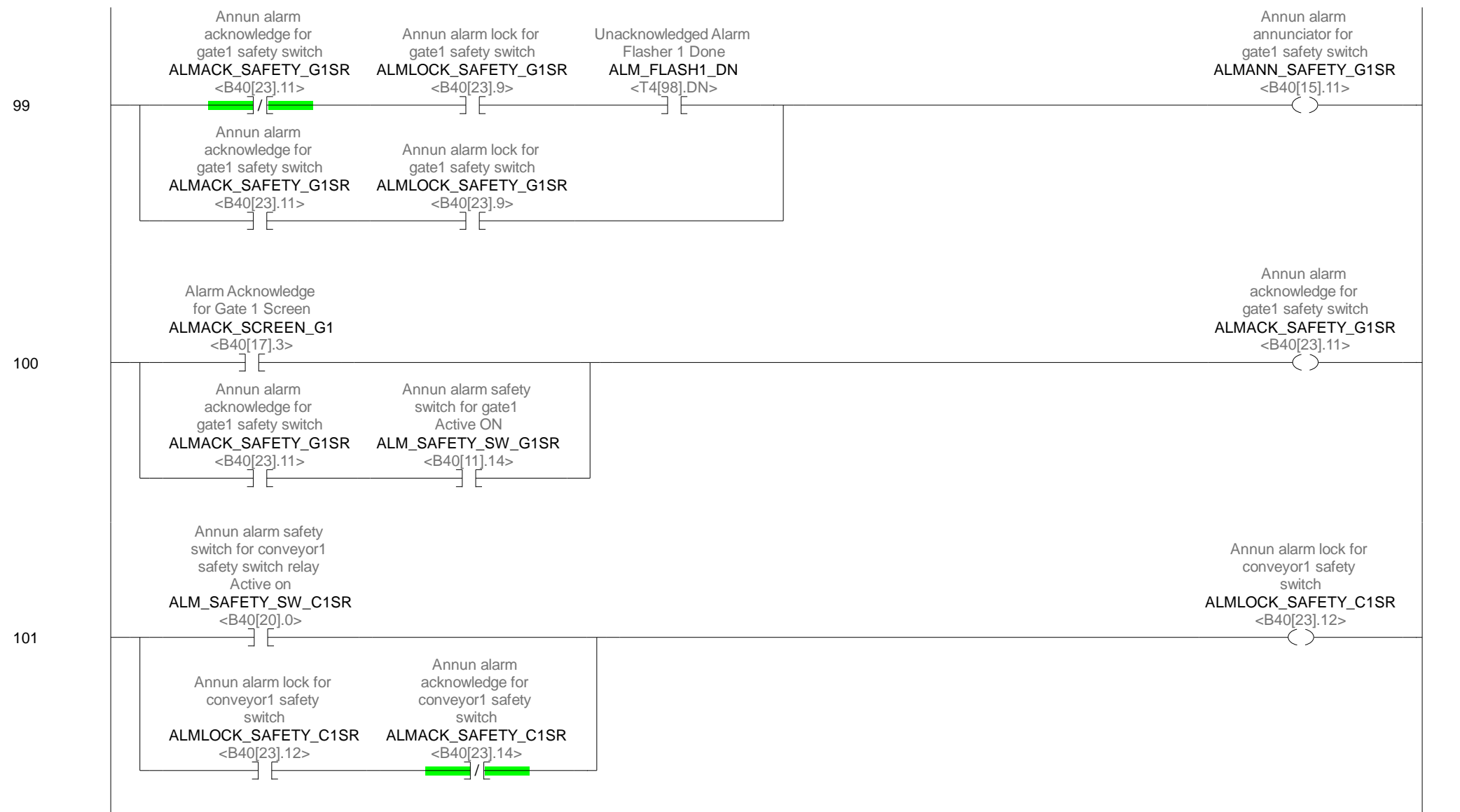


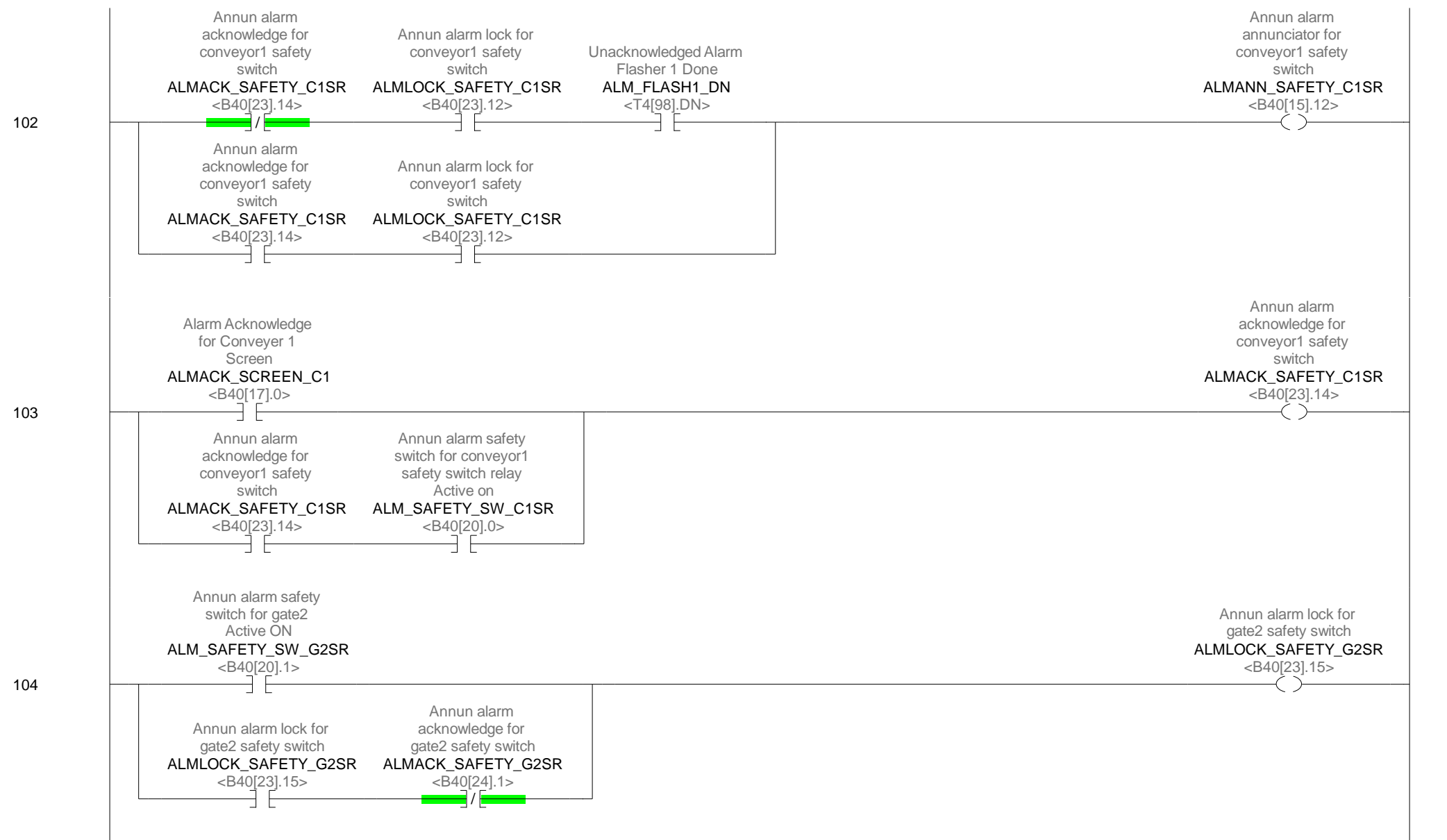


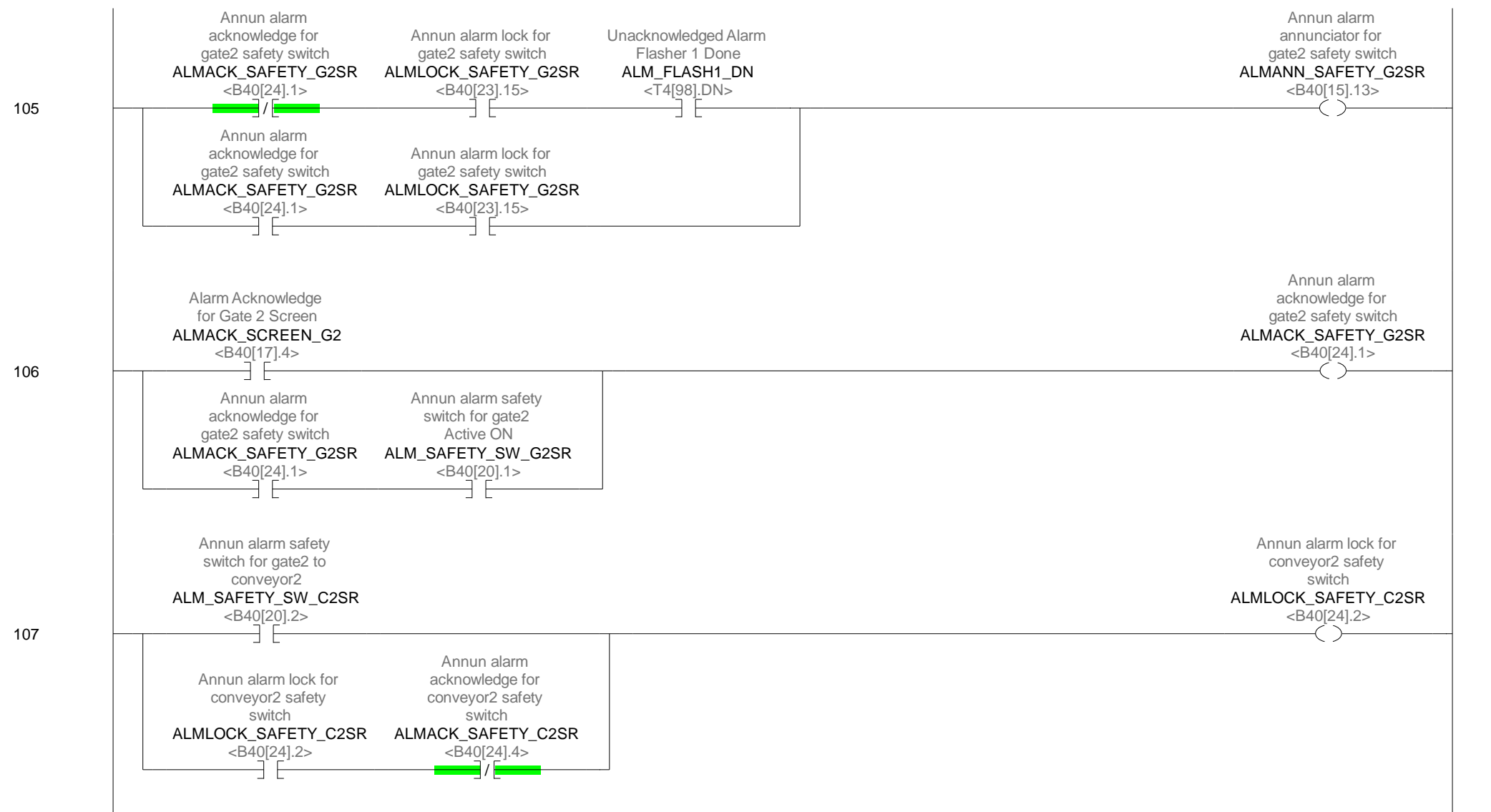


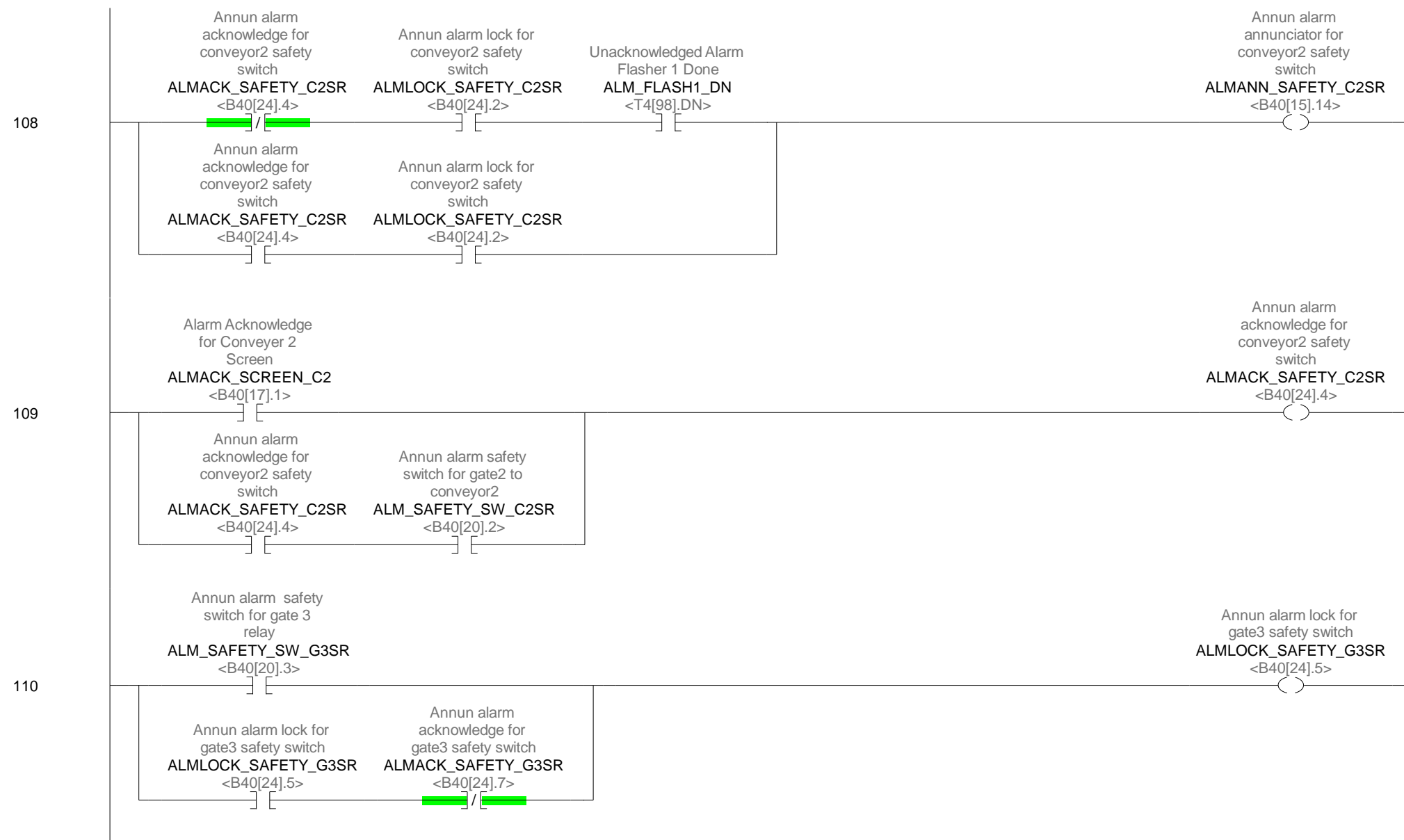


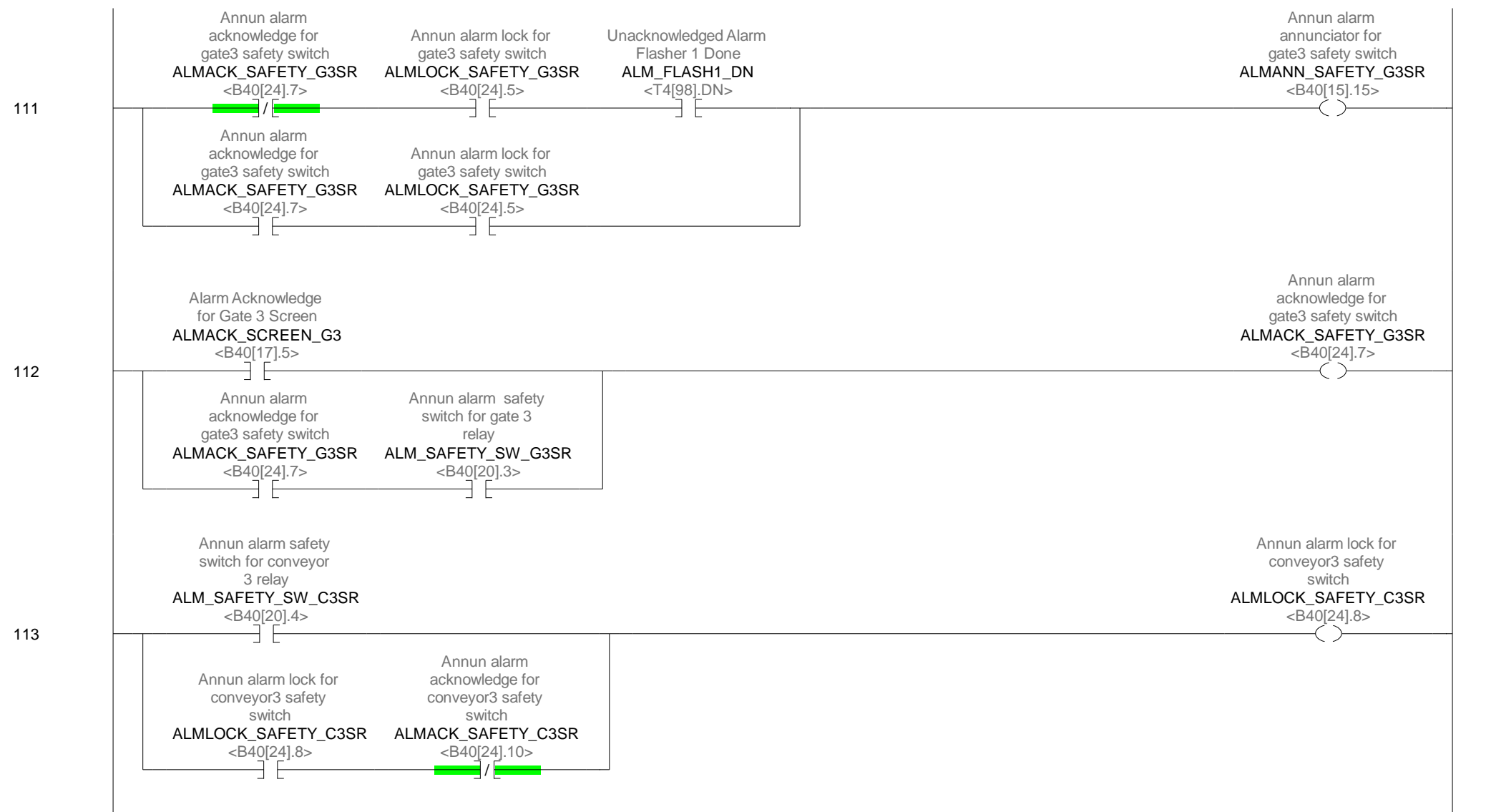


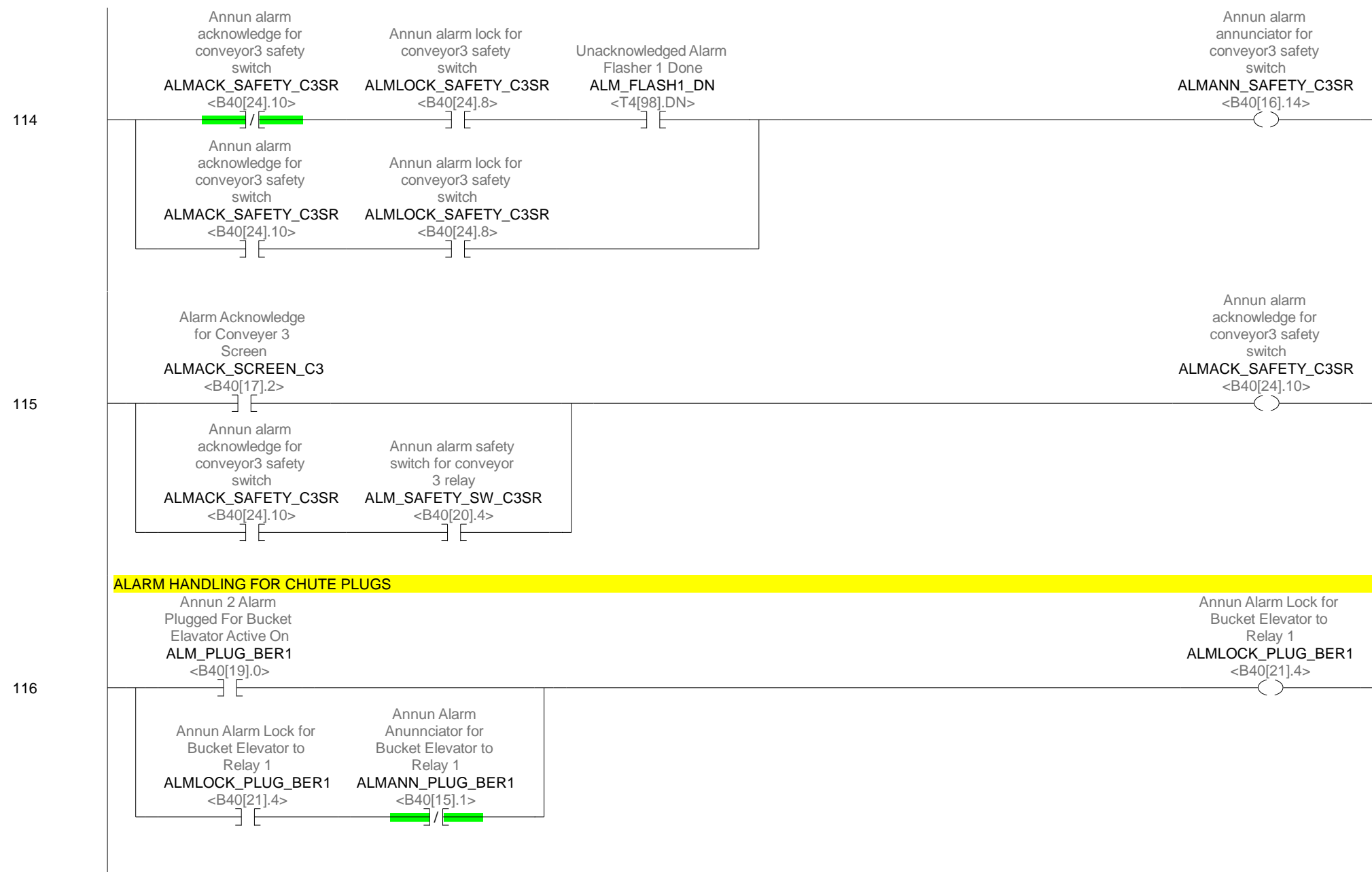


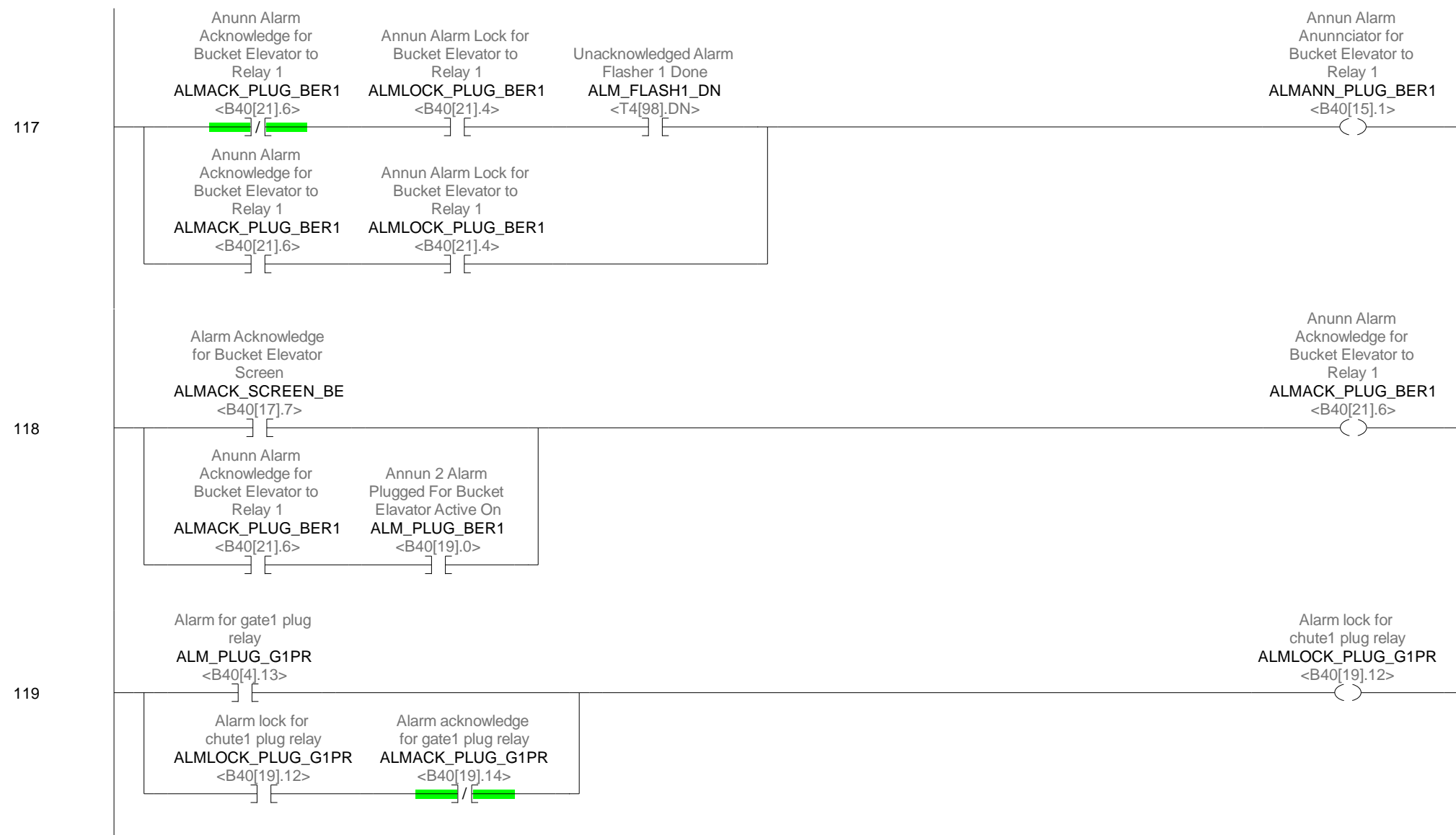




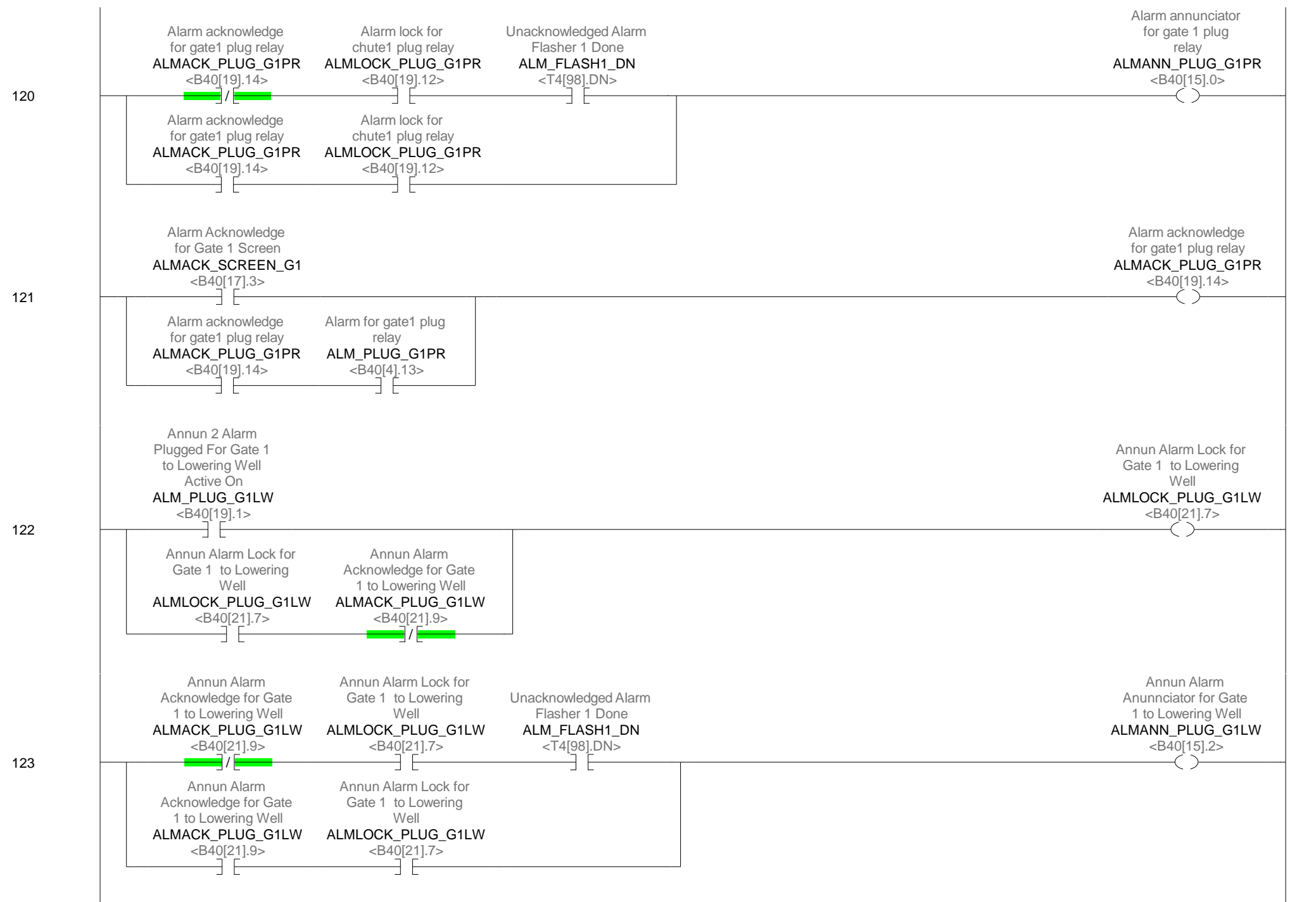


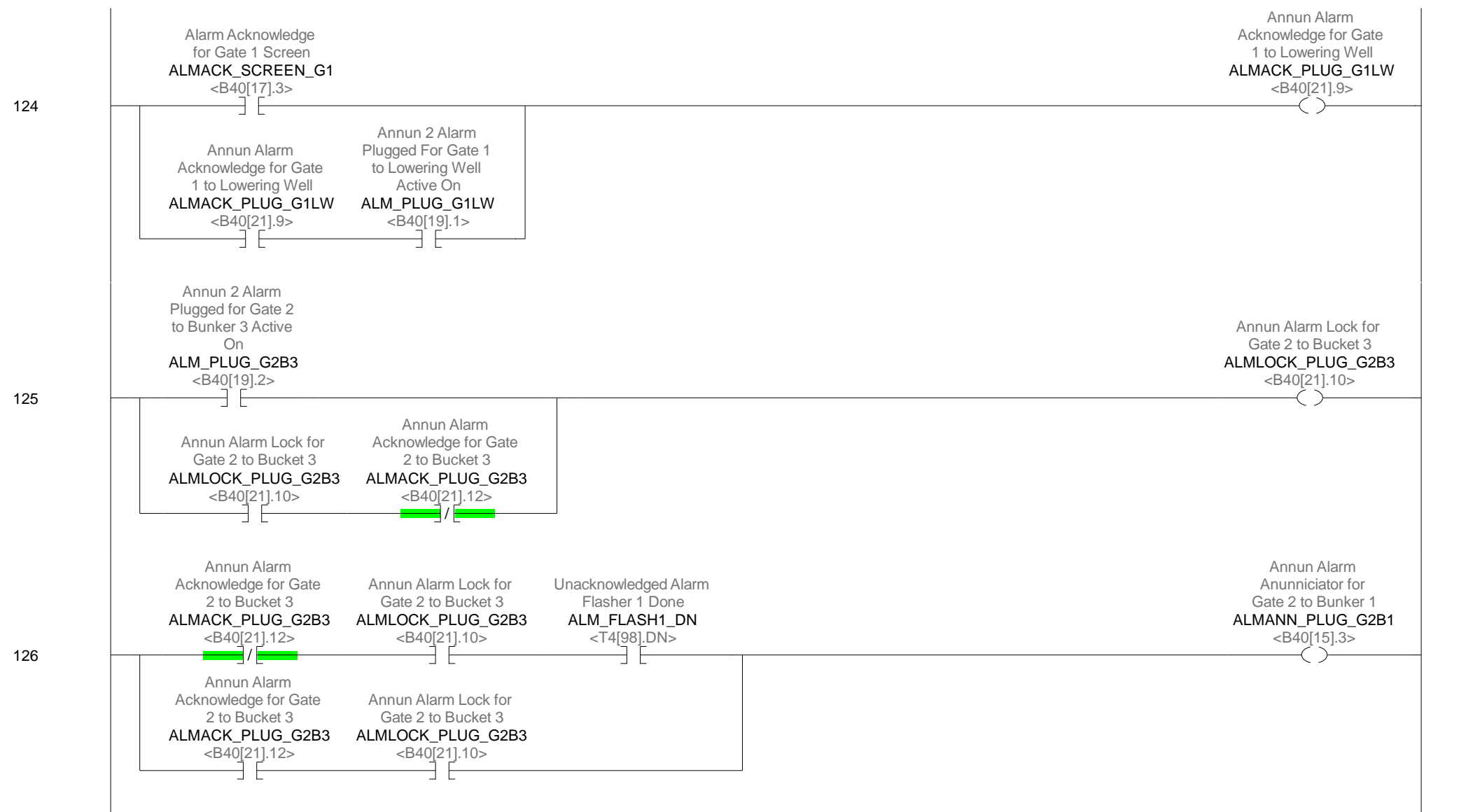


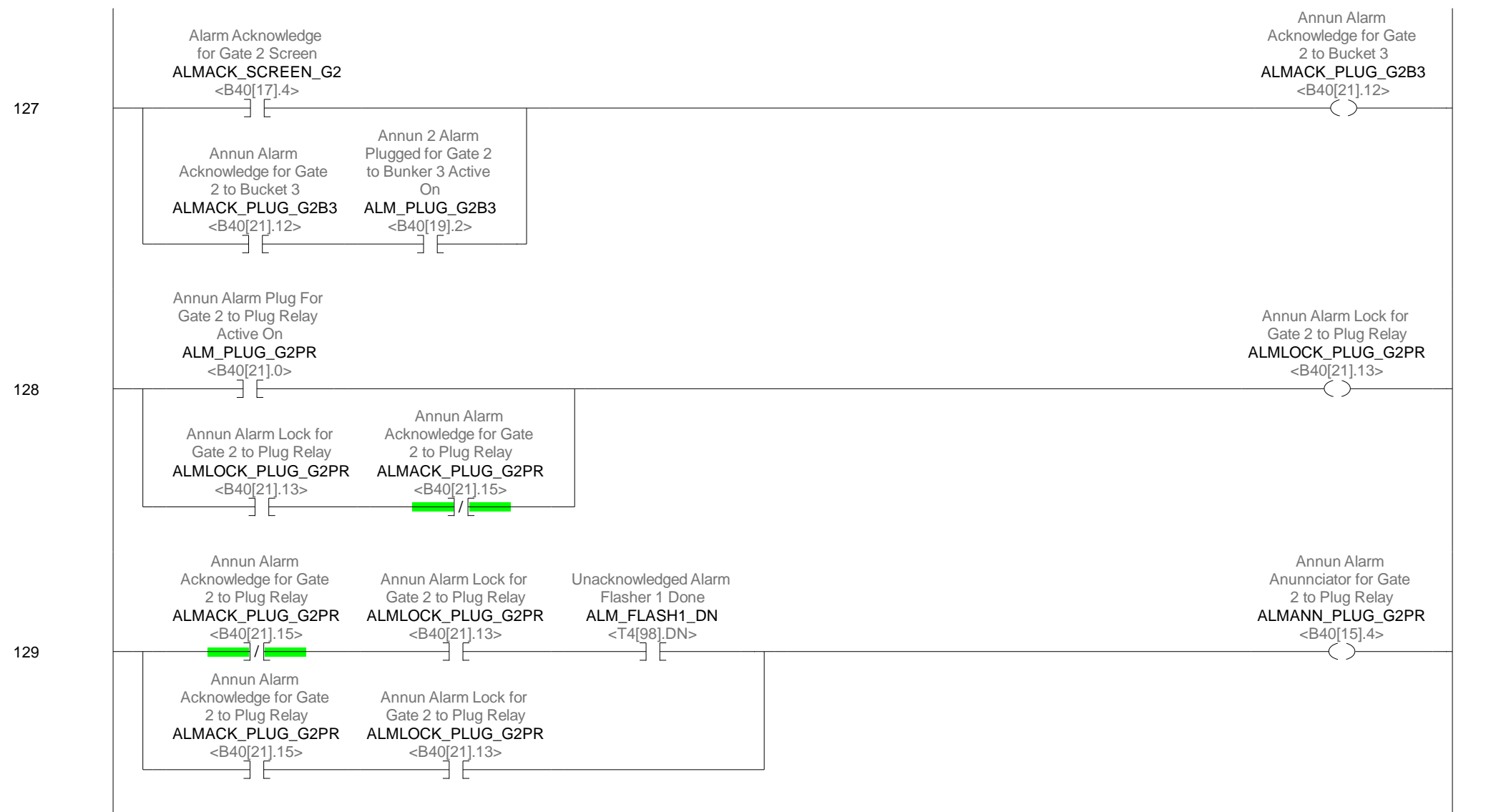


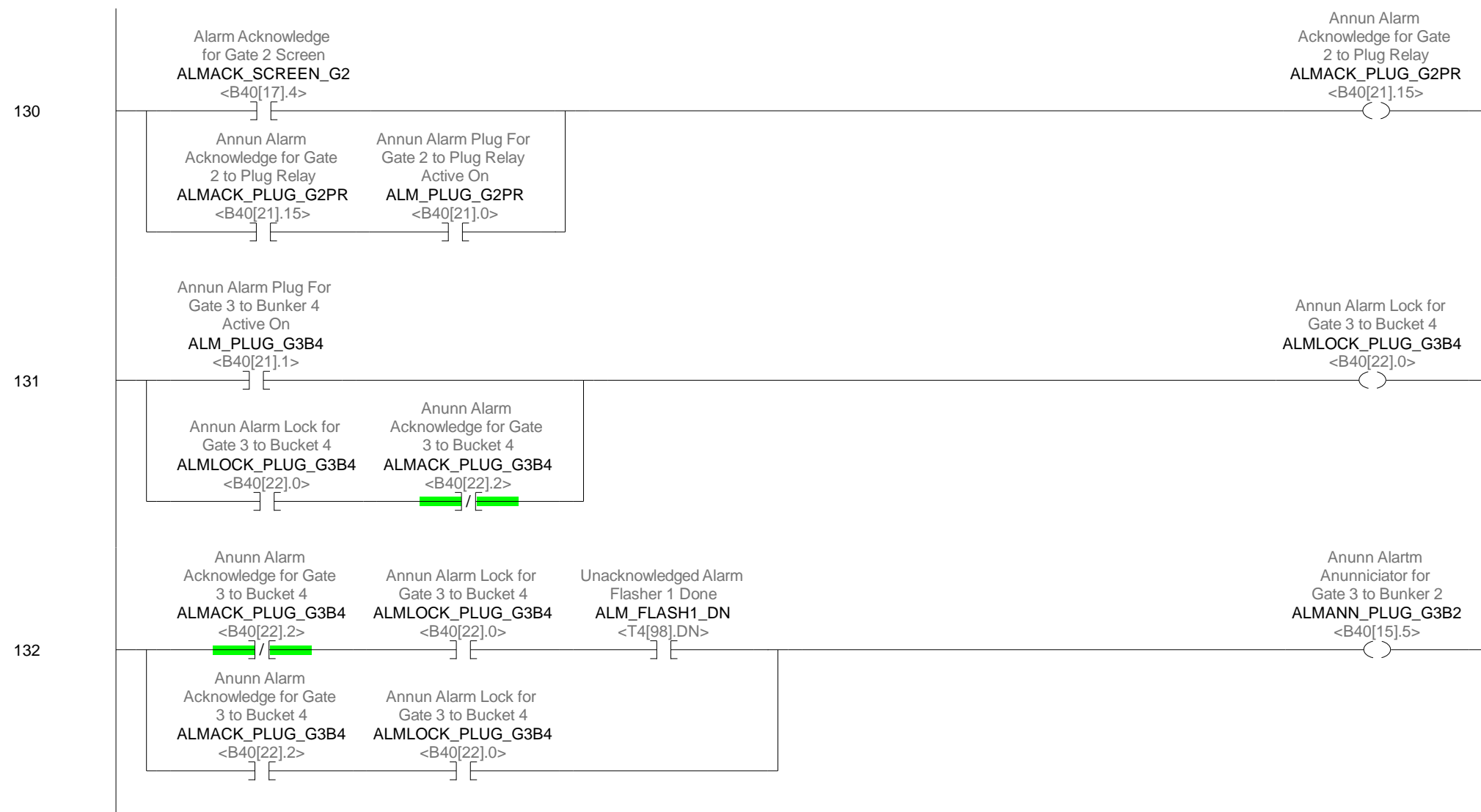


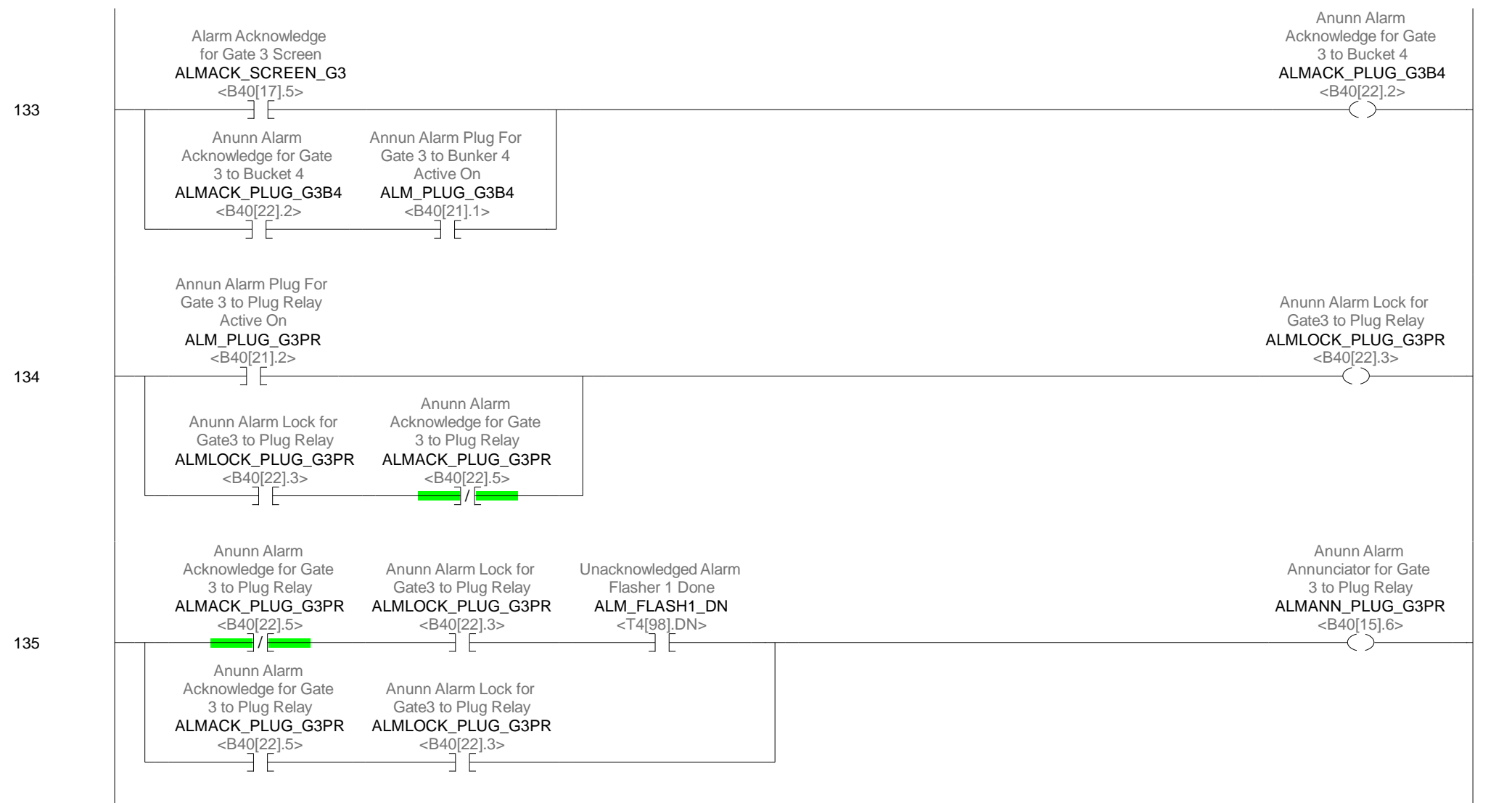


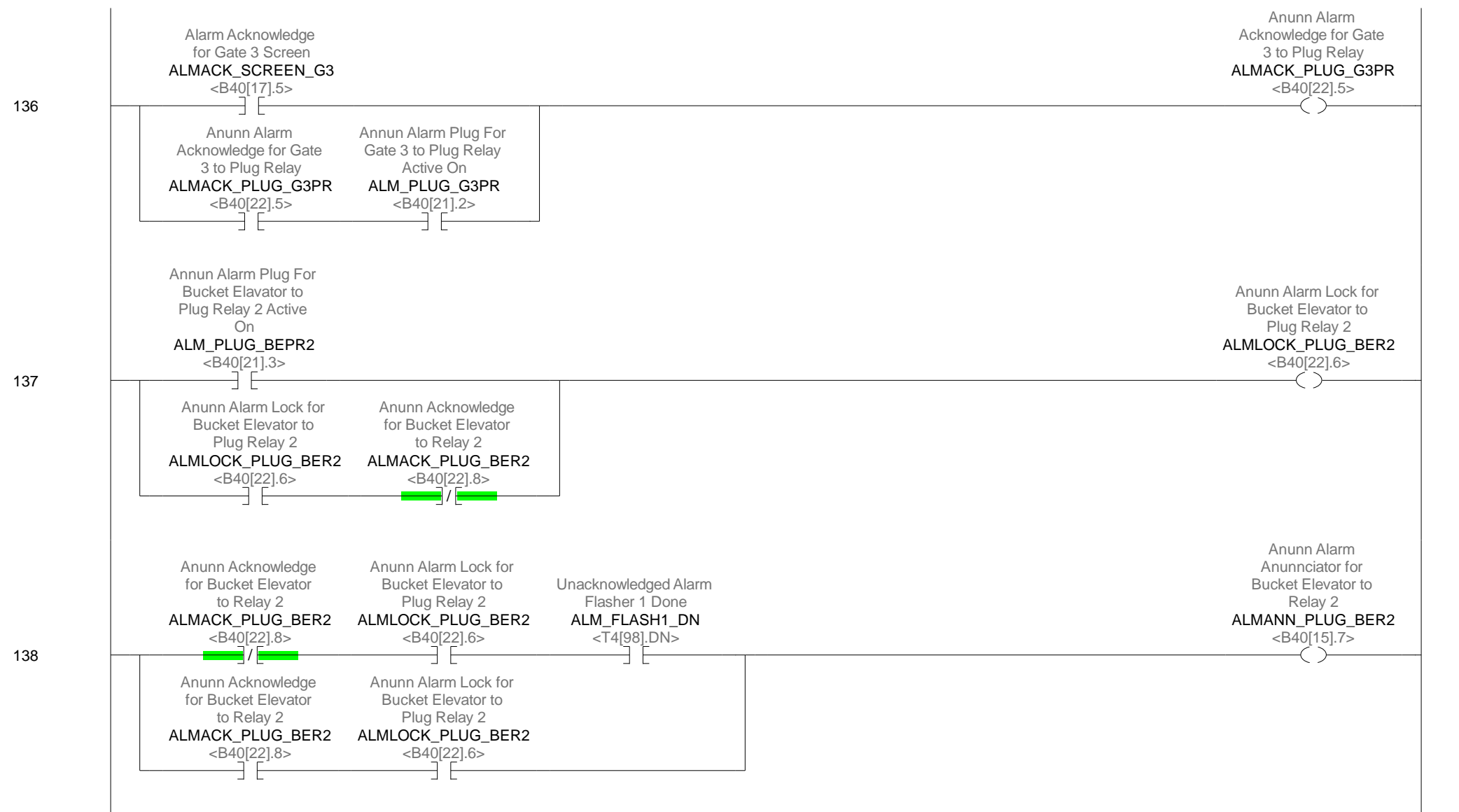


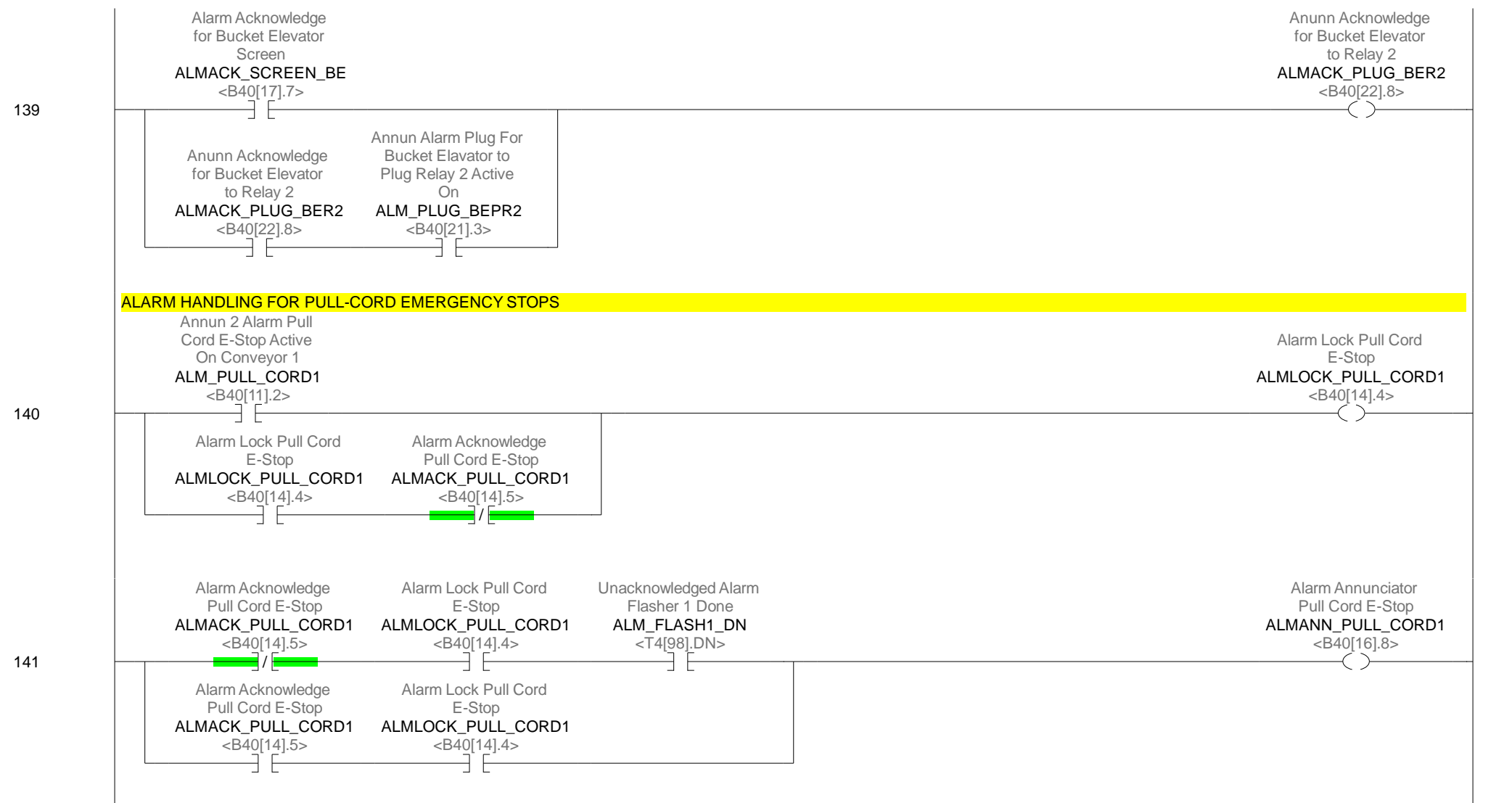


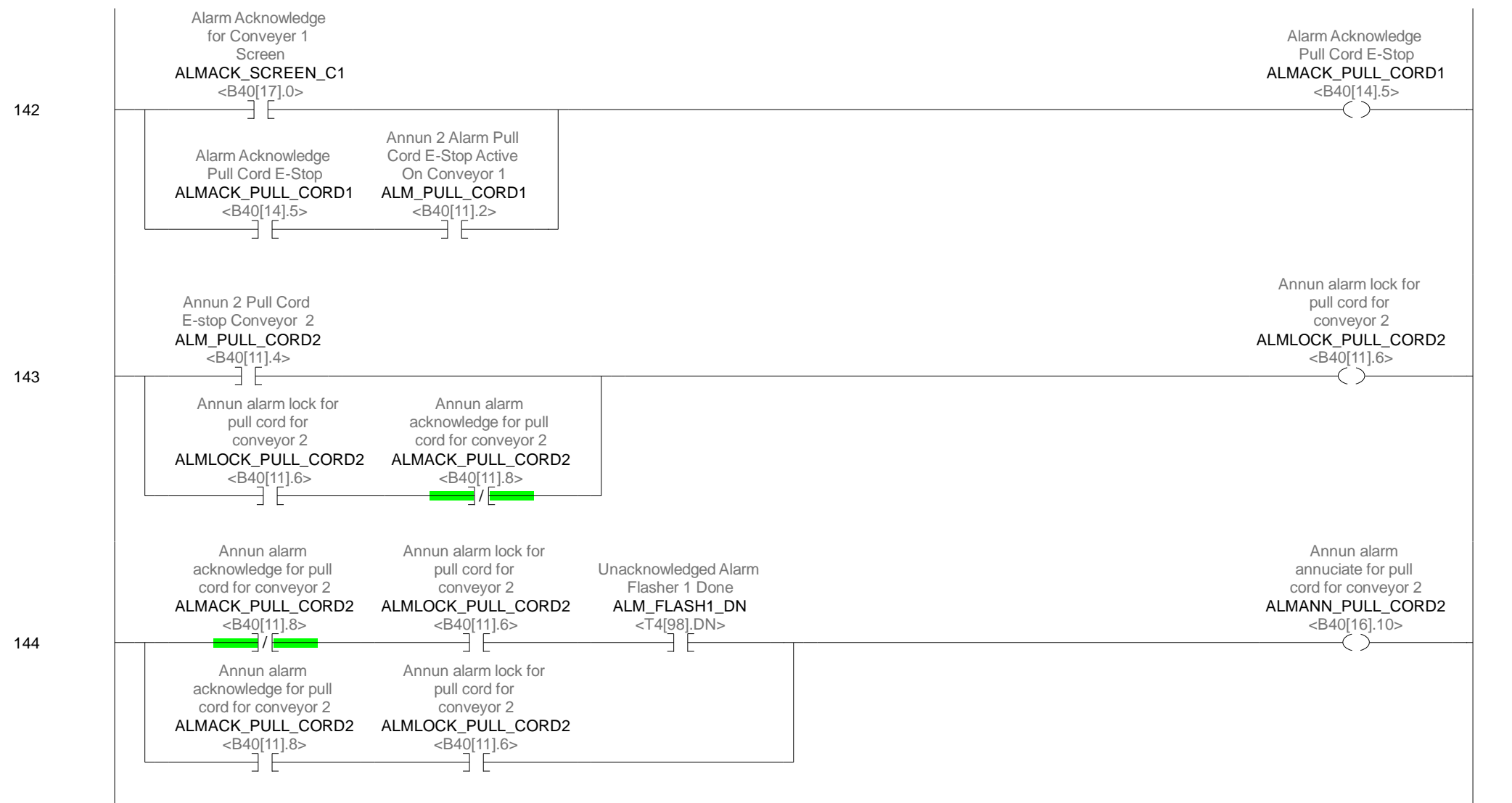




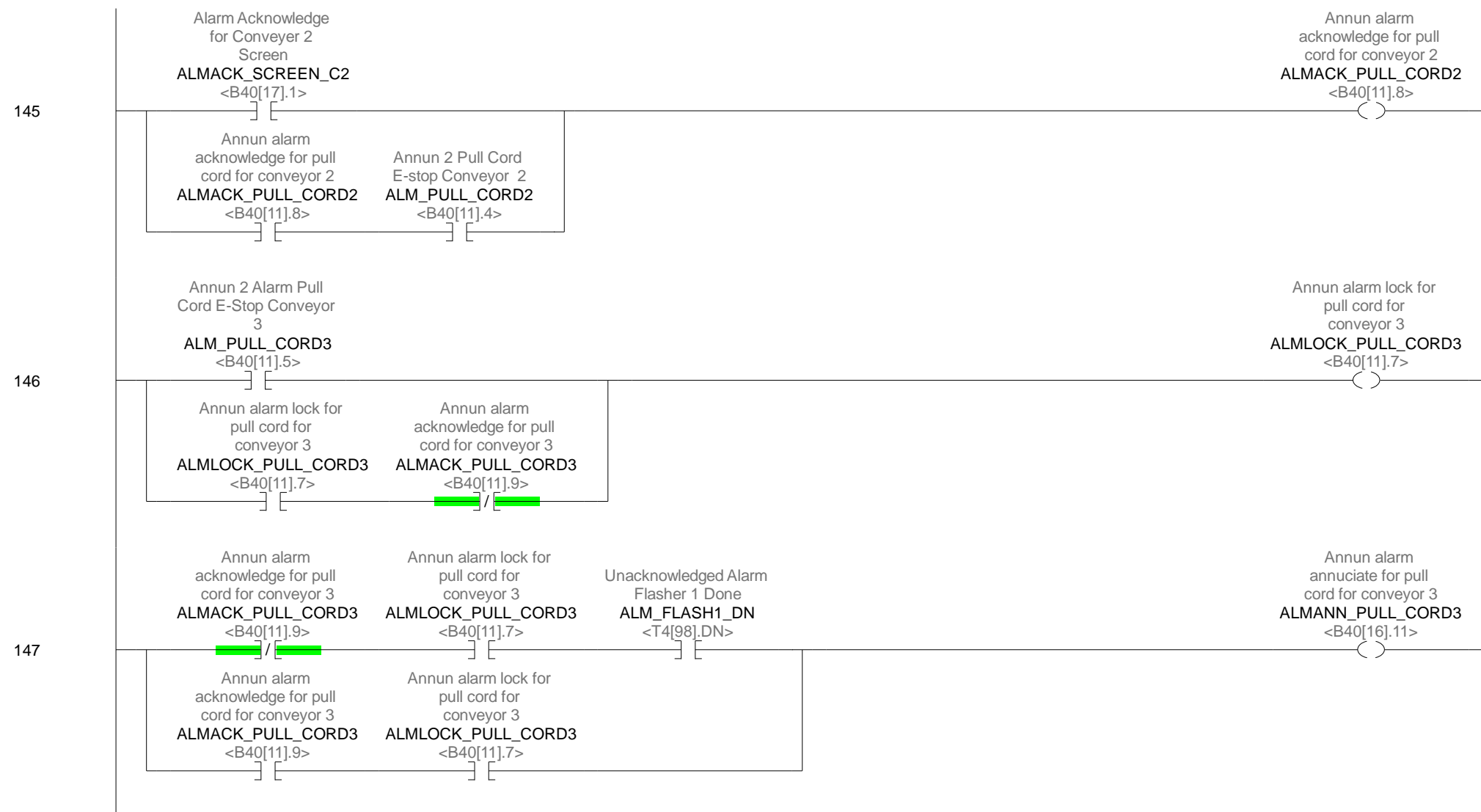


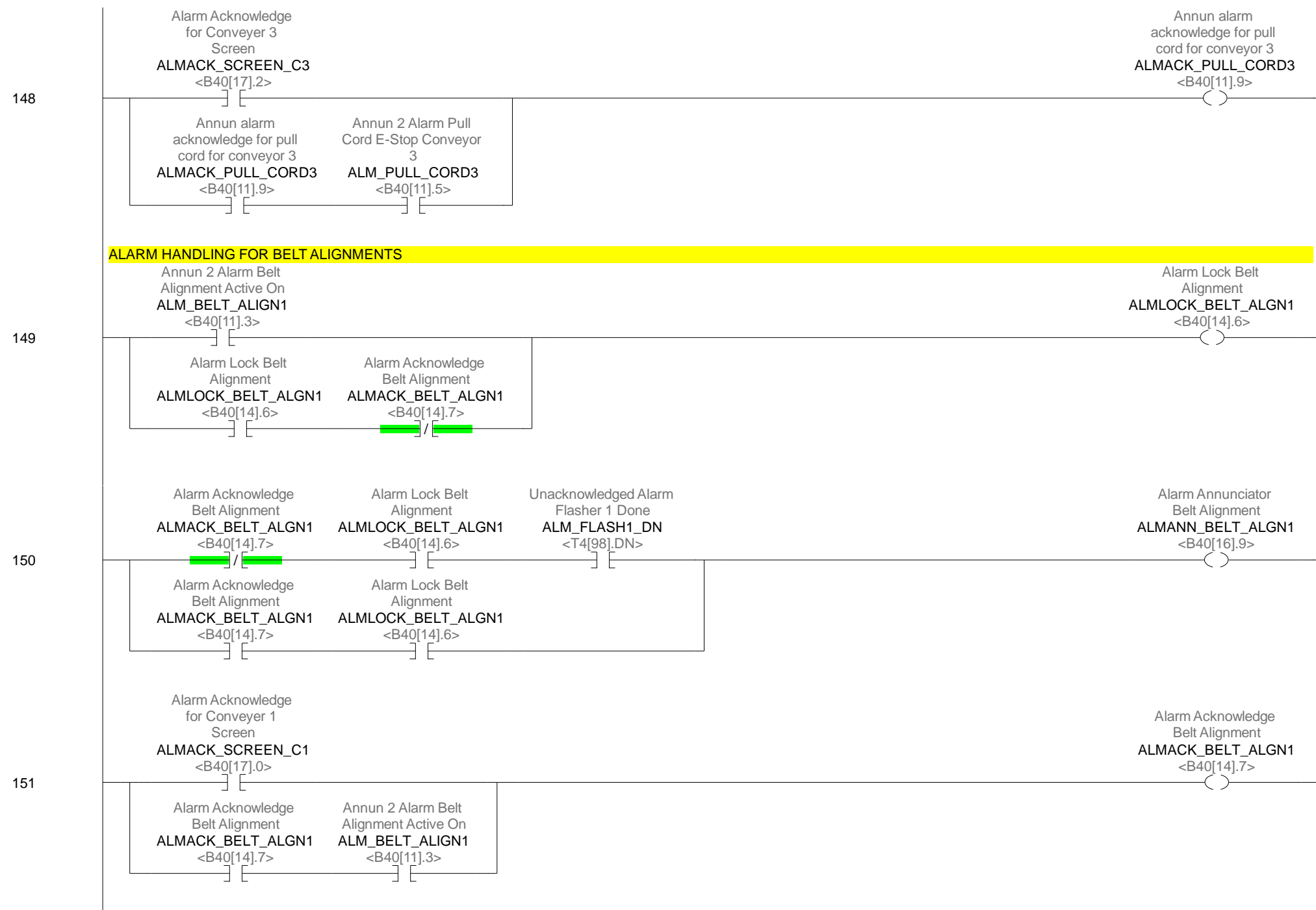


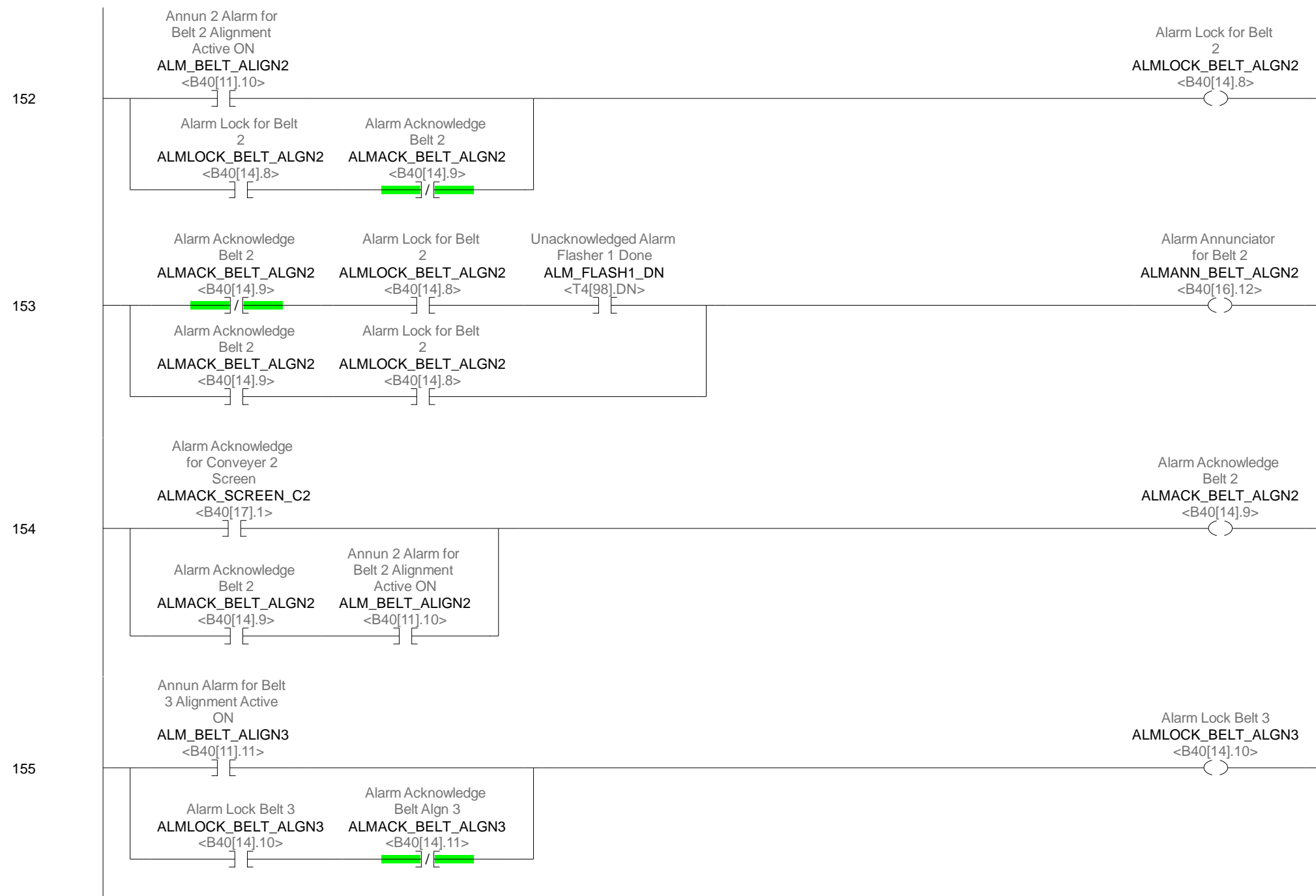


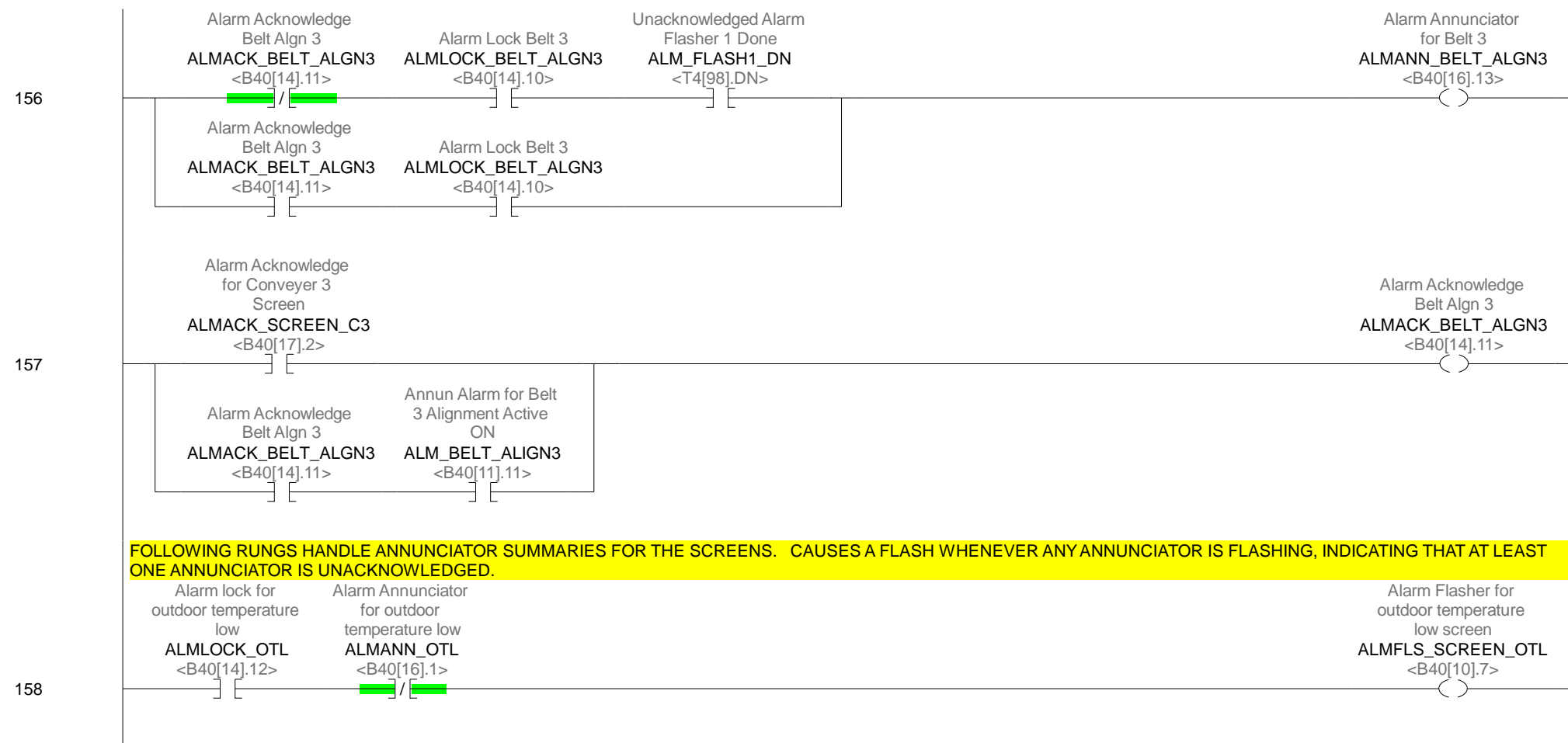




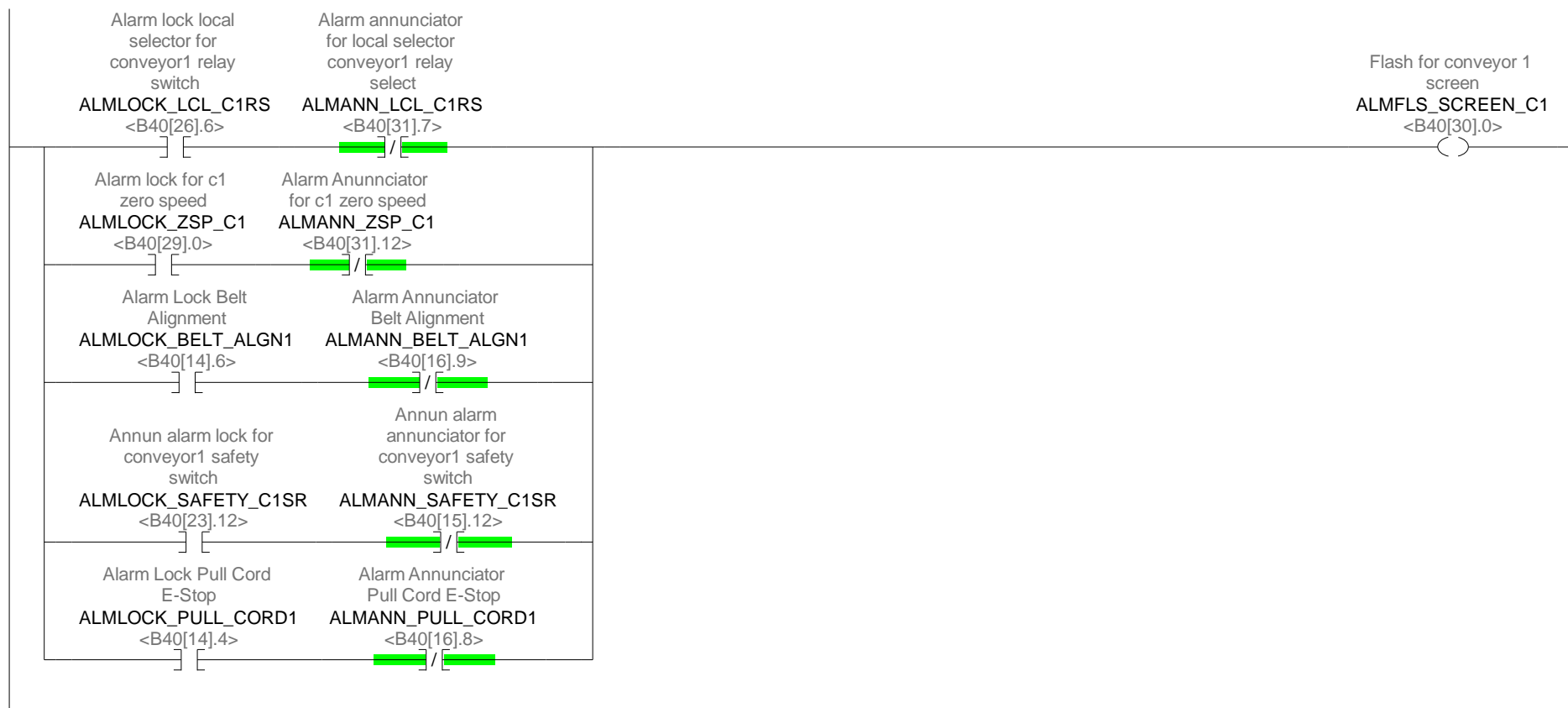




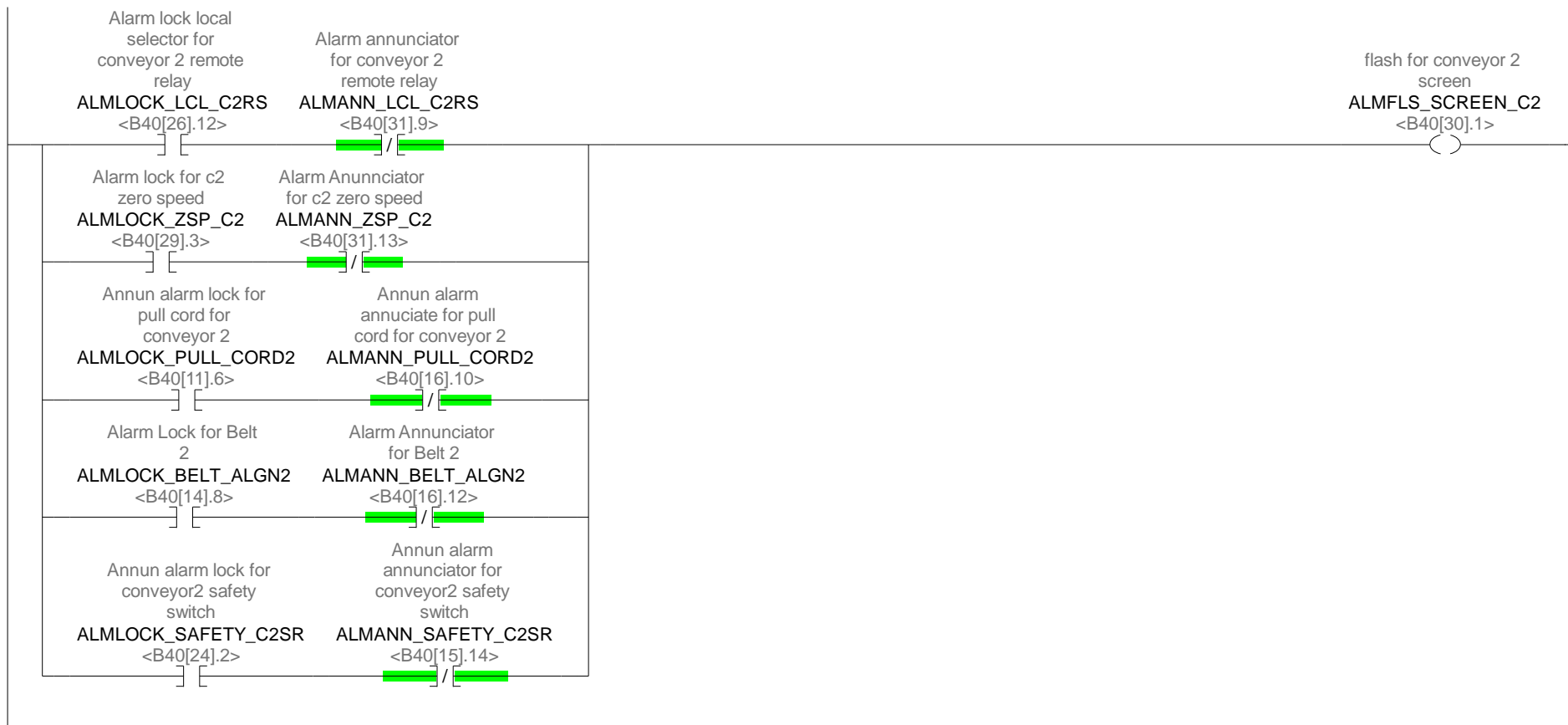




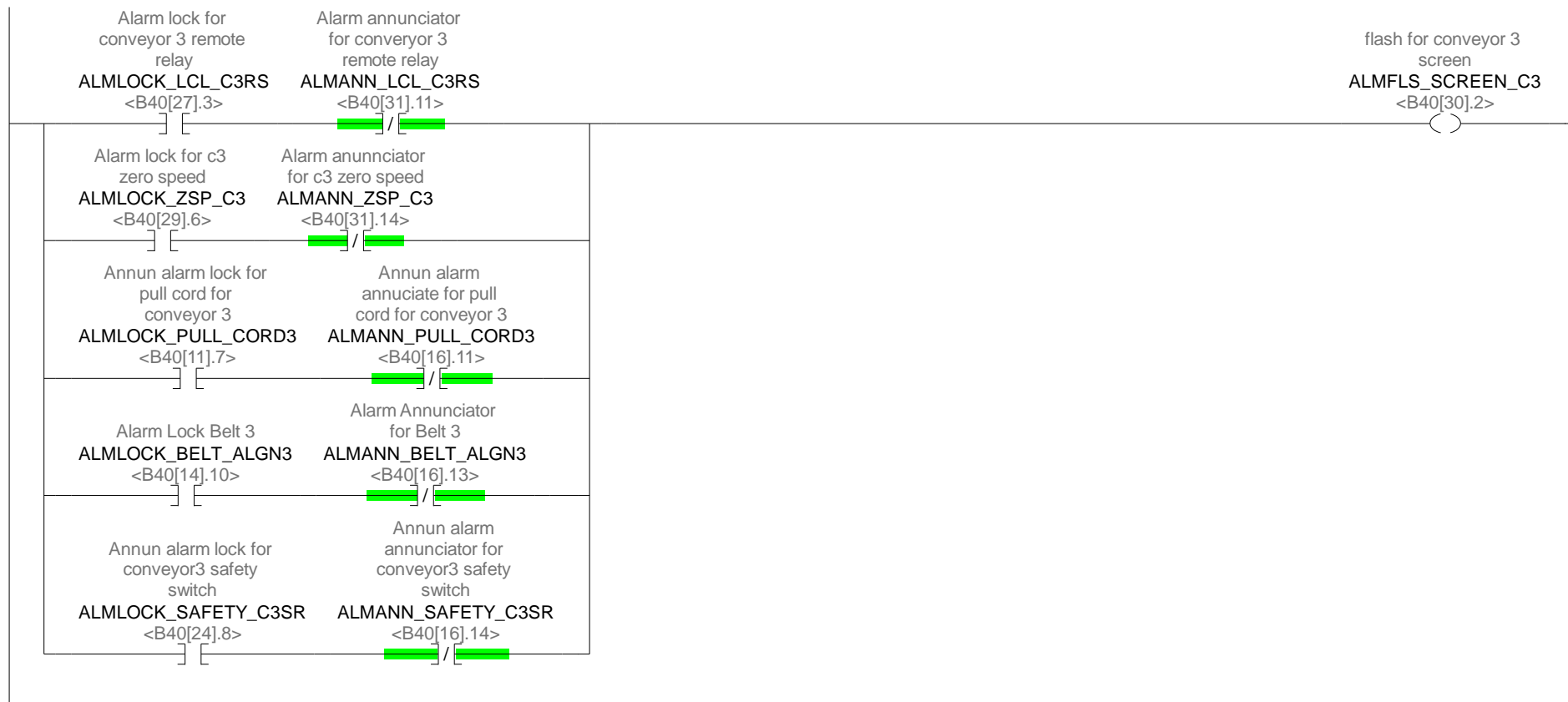
159



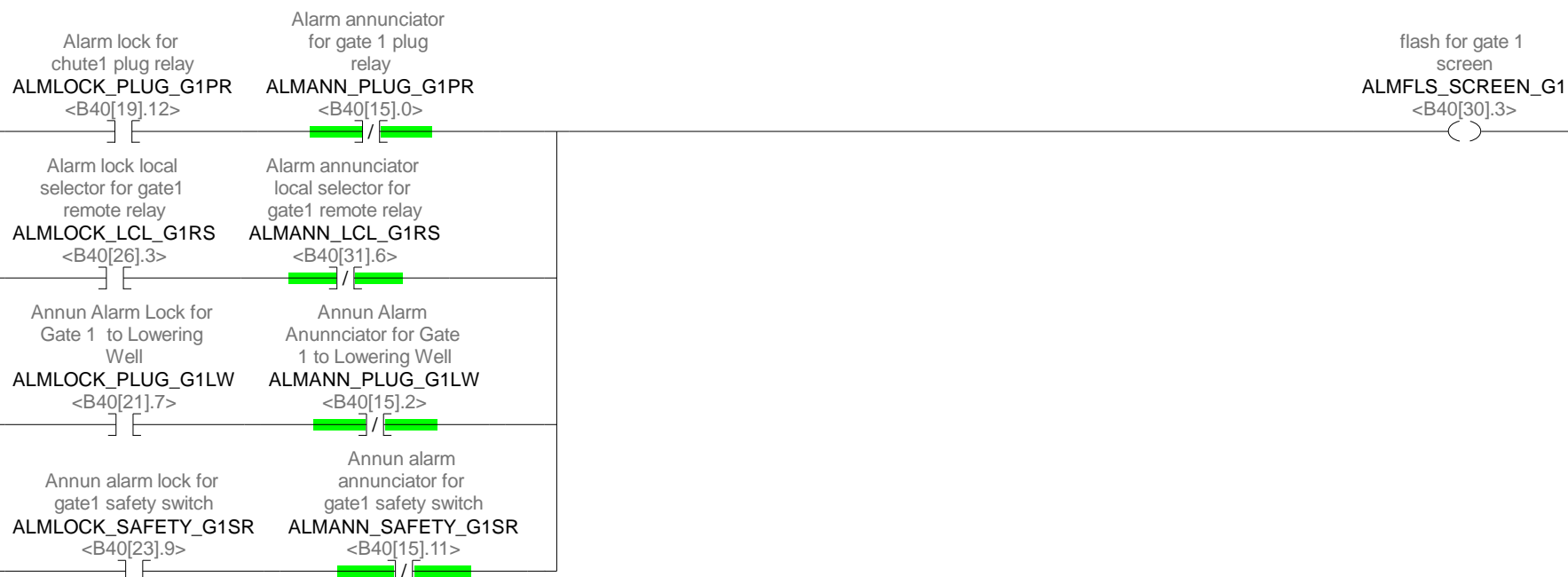
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Alarm annunciator  
for local selector  
conveyor1 relay  
select

**ALMANN\_LCL\_C1RS**  
<B40[31].7>

Flash for conveyor 1  
screen

**ALMFLS\_SCREEN\_C1**  
<B40[30].0>

Alarm annunciator  
for conveyor screen

**ALMANN\_SCREEN\_C1**  
<B40[30].10>

Alarm Annunciator  
for c1 zero speed

**ALMANN\_ZSP\_C1**  
<B40[31].12>

Alarm Annunciator  
Belt Alignment

**ALMANN\_BELT\_ALGN1**  
<B40[16].9>

Annun alarm  
annunciator for  
conveyor1 safety  
switch

**ALMANN\_SAFETY\_C1SR**  
<B40[15].12>

Alarm Annunciator  
Pull Cord E-Stop

**ALMANN\_PULL\_CORD1**  
<B40[16].8>

Alarm Lock Lowering  
Well High

**ALMLOCK\_LW\_HIGH**  
<B40[12].8>

Alarm Annunciator  
Lowering Well High

**ALMANN\_LW\_HIGH**  
<B40[16].0>

Flash for the  
lowering well screen

**ALMFLS\_SCREEN\_LW**  
<B40[30].9>

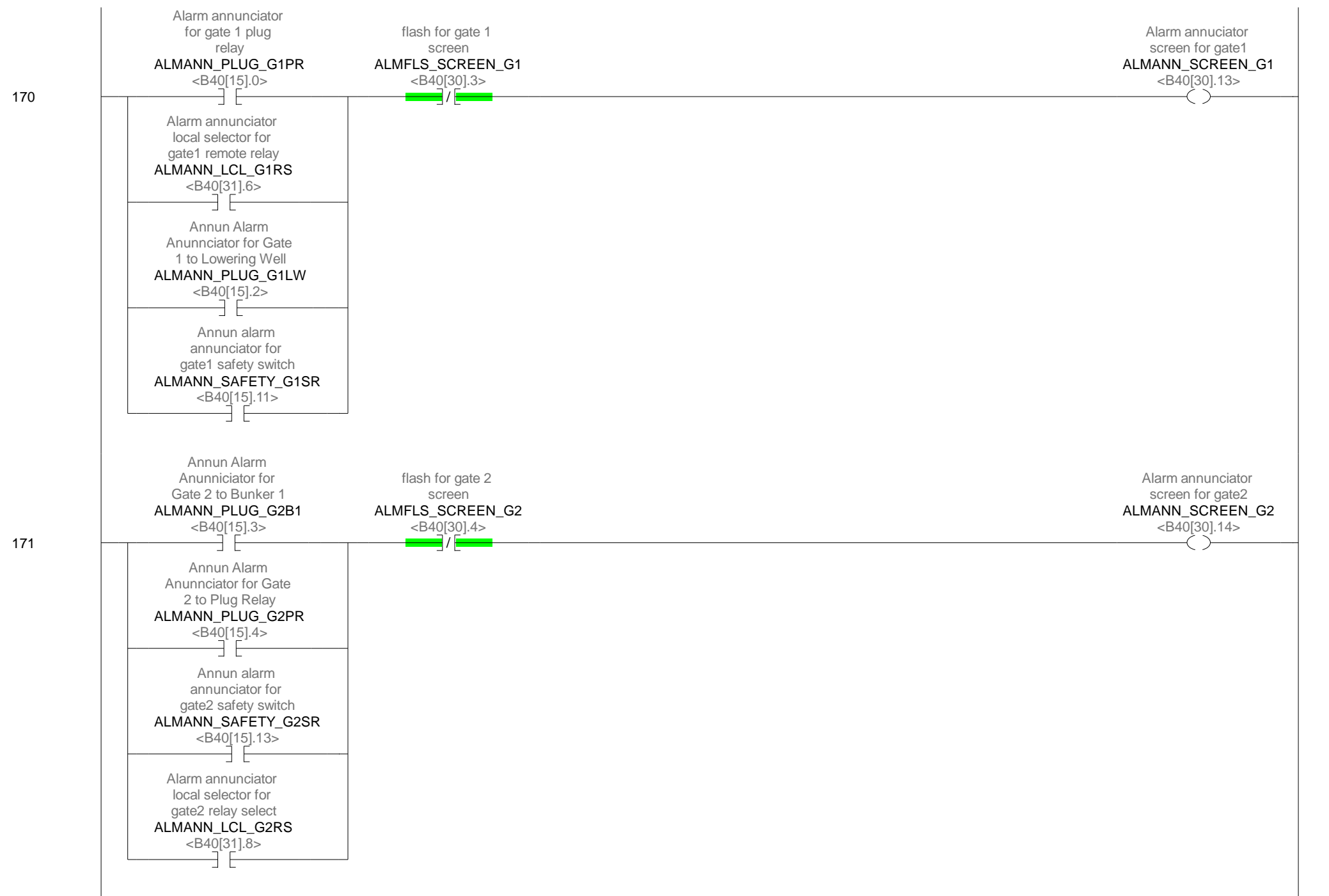
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Anunn Alarm  
Annunciator for  
Gate 3 to Bunker 2  
**ALMANN\_PLUG\_G3B2**  
<B40[15].5>

flash for gate 3  
screen  
**ALMFLS\_SCREEN\_G3**  
<B40[30].5>

Alarm annunciator  
for gate 3 screen  
**ALMANN\_SCREEN\_G3**  
<B40[30].15>

Anunn Alarm  
Annunciator for Gate  
3 to Plug Relay  
**ALMANN\_PLUG\_G3PR**  
<B40[15].6>

Annun alarm  
annunciator for  
gate3 safety switch  
**ALMANN\_SAFETY\_G3SR**  
<B40[15].15>

Alarm annunciator  
for gate 3 remote  
relay  
**ALMANN\_LCL\_G3RS**  
<B40[31].10>

Annun Alarm lock for  
unloading feeder  
safety switch  
**ALMLOCK\_SAFETY\_UFSR**  
<B40[23].0>

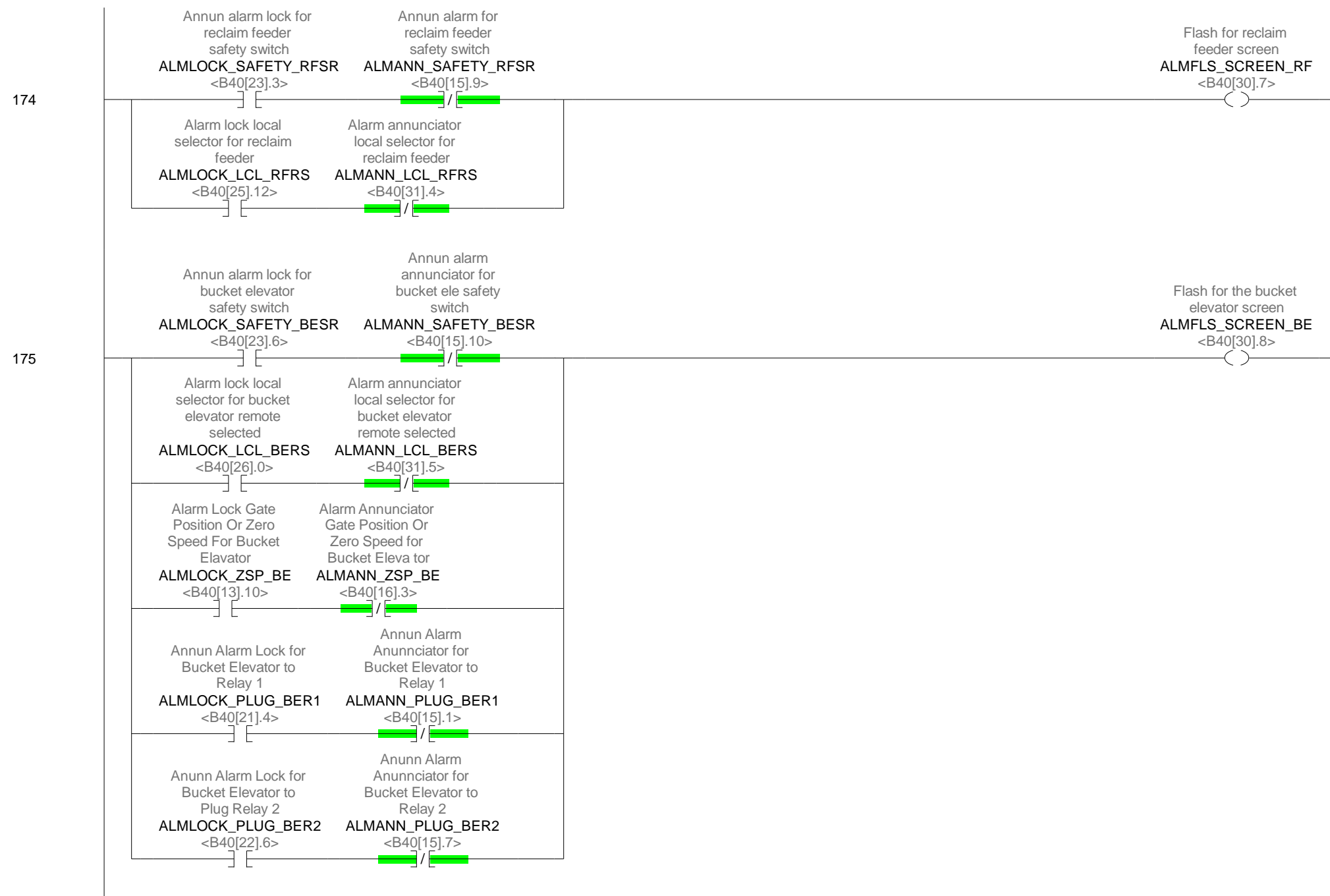
Annun alarm  
annunciator for  
unloading feeder  
safety switch  
**ALMANN\_SAFETY\_UFSR**  
<B40[15].8>

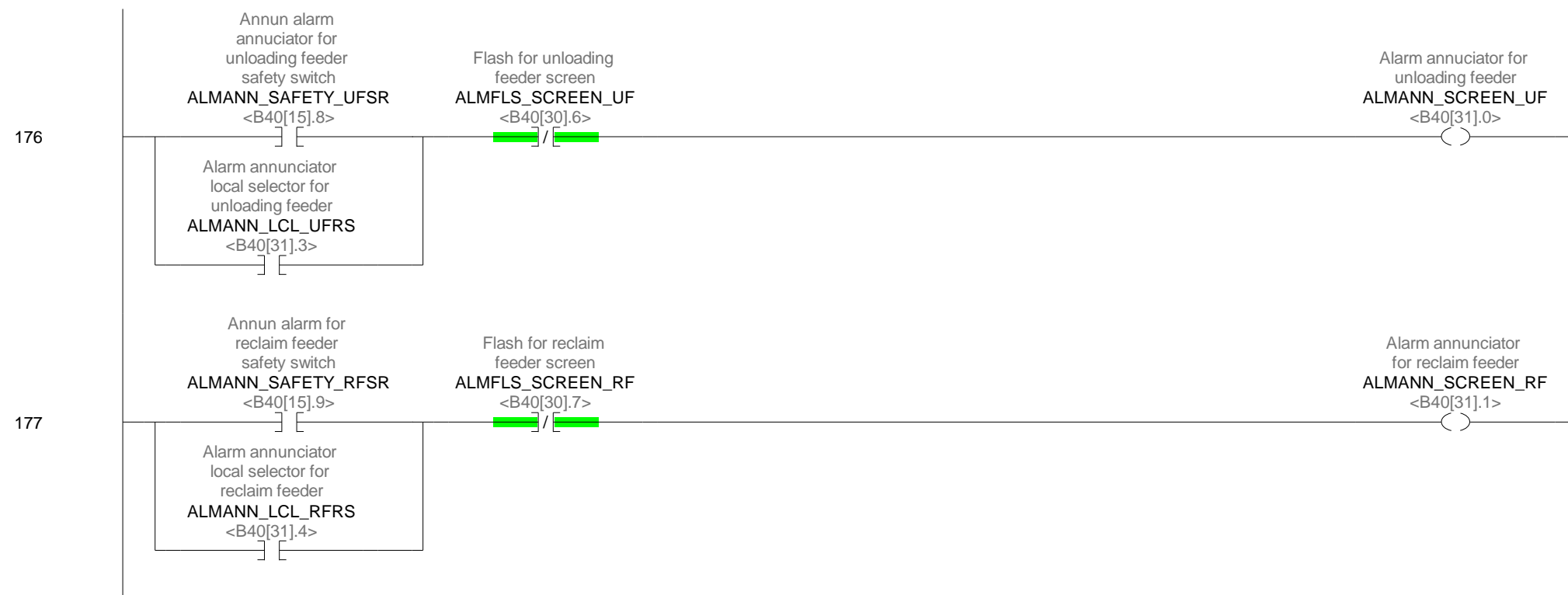
Flash for unloading  
feeder screen  
**ALMFLS\_SCREEN\_UF**  
<B40[30].6>

Alarm lock local  
selector for  
unloading feeder  
**ALMLOCK\_LCL\_UFRS**  
<B40[25].9>

Alarm annunciator  
local selector for  
unloading feeder  
**ALMANN\_LCL\_UFRS**  
<B40[31].3>

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Annun alarm  
annunciator for  
bucket ele safety  
switch  
**ALMANN\_SAFETY\_BESR**  
<B40[15].10>

Flash for the bucket  
elevator screen  
**ALMFLS\_SCREEN\_BE**  
<B40[30].8>

Alarm annunciator for  
bucket elevator  
screen  
**ALMANN\_SCREEN\_BE**  
<B40[31].2>

Alarm annunciator  
local selector for  
bucket elevator  
remote selected  
**ALMANN\_LCL\_BERS**  
<B40[31].5>

Alarm Annunciator  
Gate Position Or  
Zero Speed for  
Bucket Elevator  
**ALMANN\_ZSP\_BE**  
<B40[16].3>

Annun Alarm  
Anunciator for  
Bucket Elevator to  
Relay 1  
**ALMANN\_PLUG\_BER1**  
<B40[15].1>

Anunn Alarm  
Anunciator for  
Bucket Elevator to  
Relay 2  
**ALMANN\_PLUG\_BER2**  
<B40[15].7>

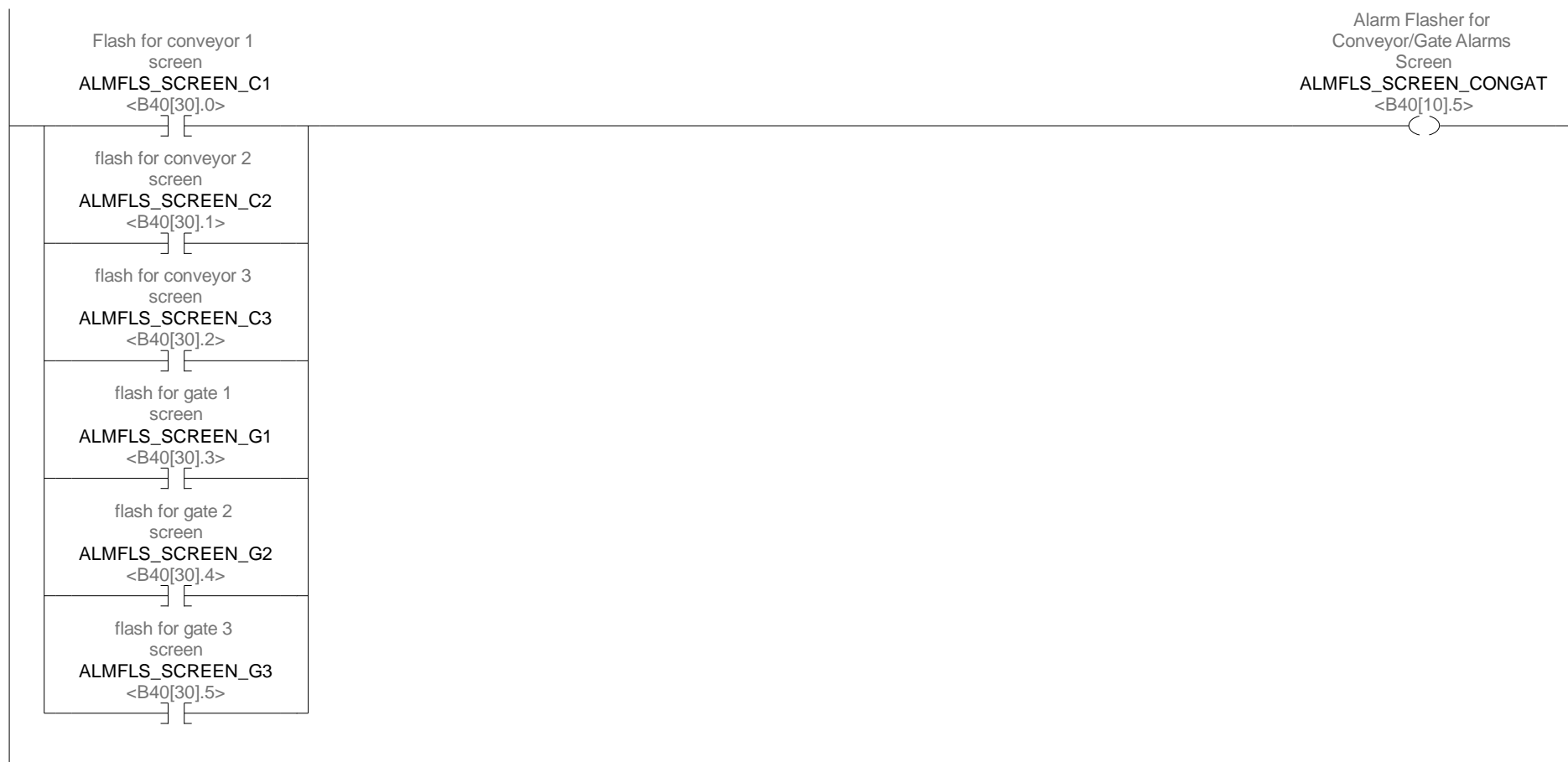
Alarm Annunciator  
Lowering Well High  
**ALMANN\_LW\_HIGH**  
<B40[16].0>

Flash for the  
lowering well screen  
**ALMFLS\_SCREEN\_LW**  
<B40[30].9>

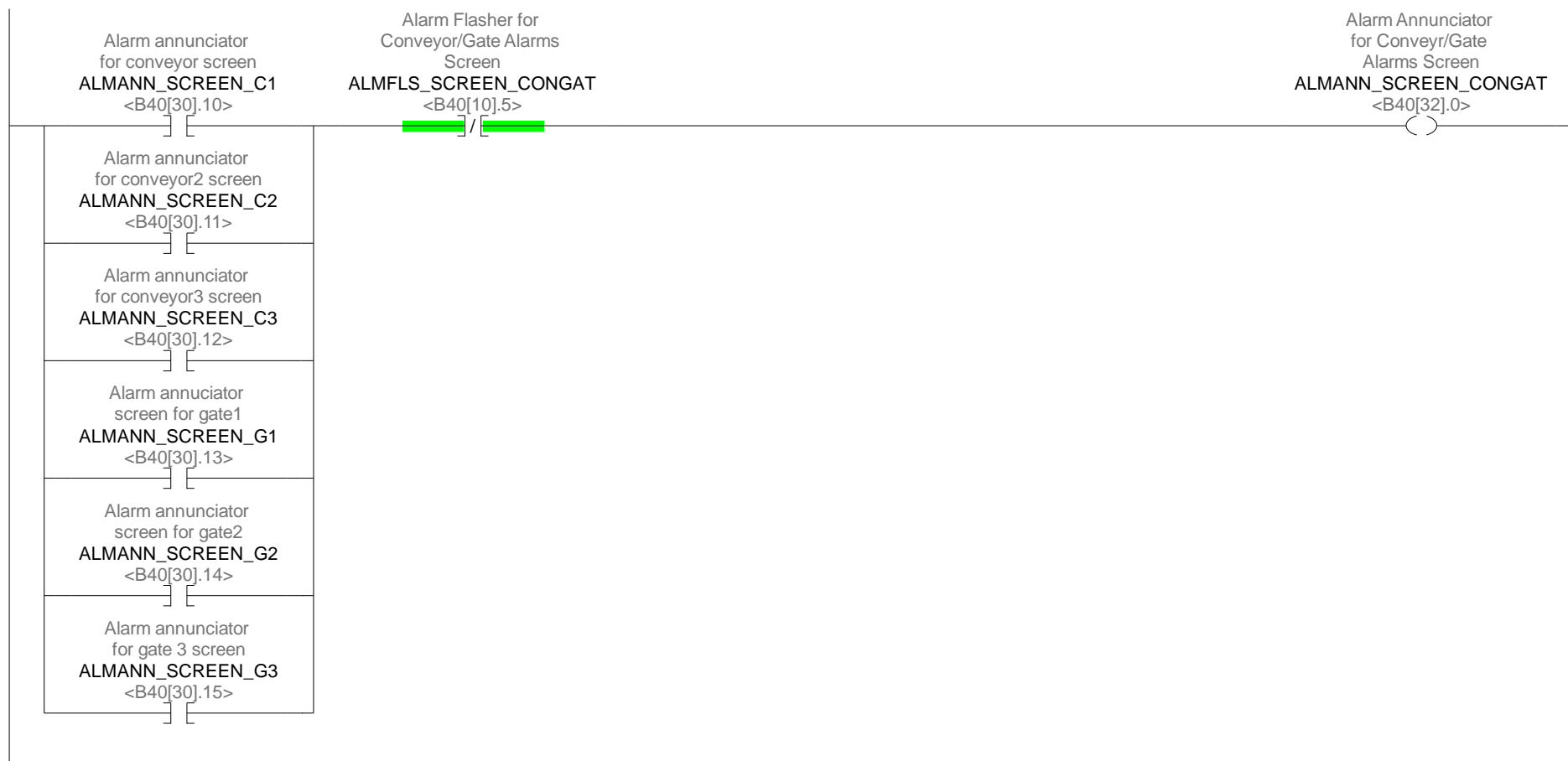
Indicator for  
Lowering Well Screen  
**ALMANN\_SCREEN\_LW**  
<B40[16].15>

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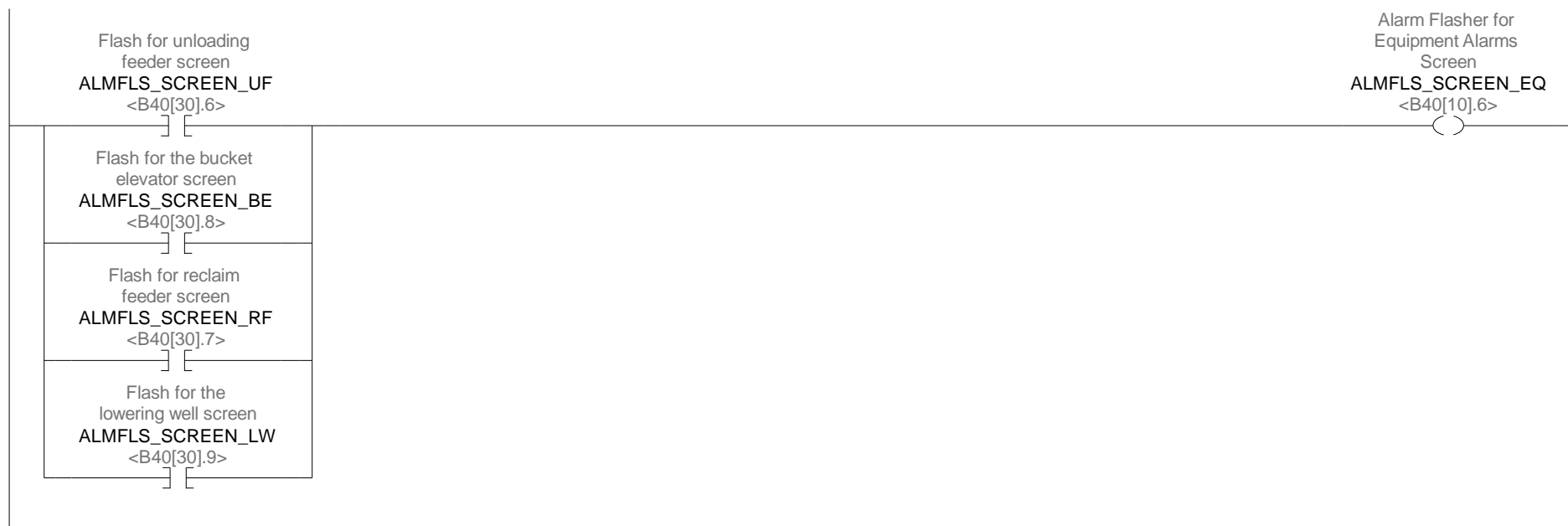
180



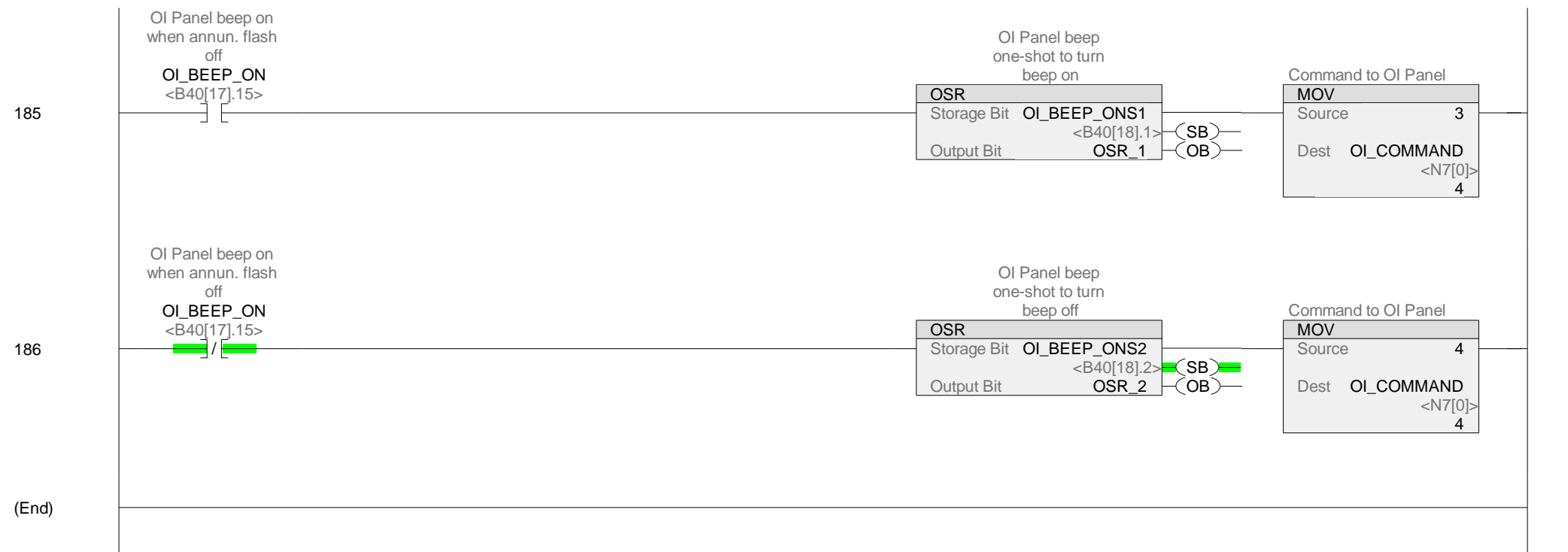
181



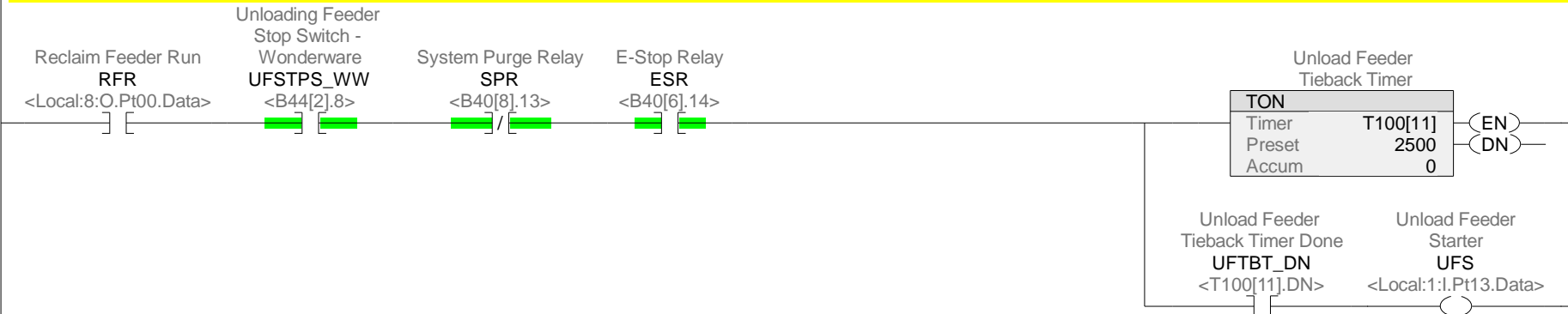
182







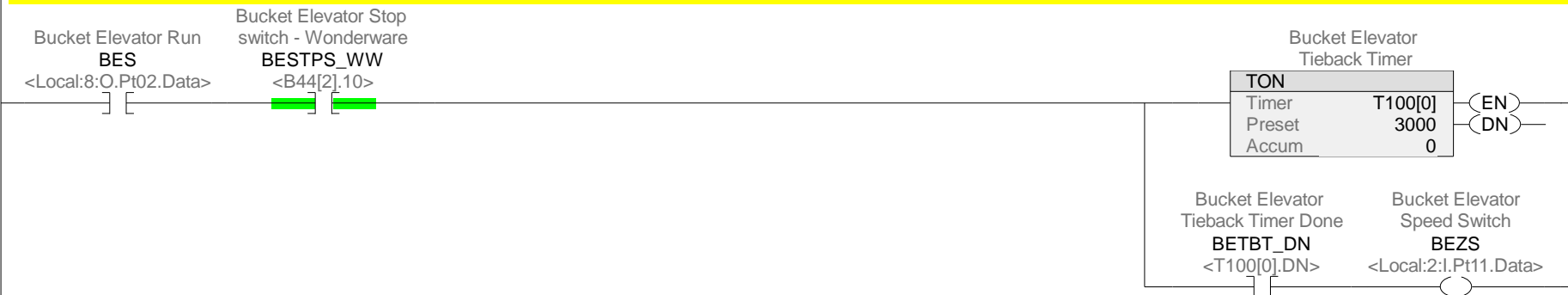
### UNLOAD FEEDER LOGIC

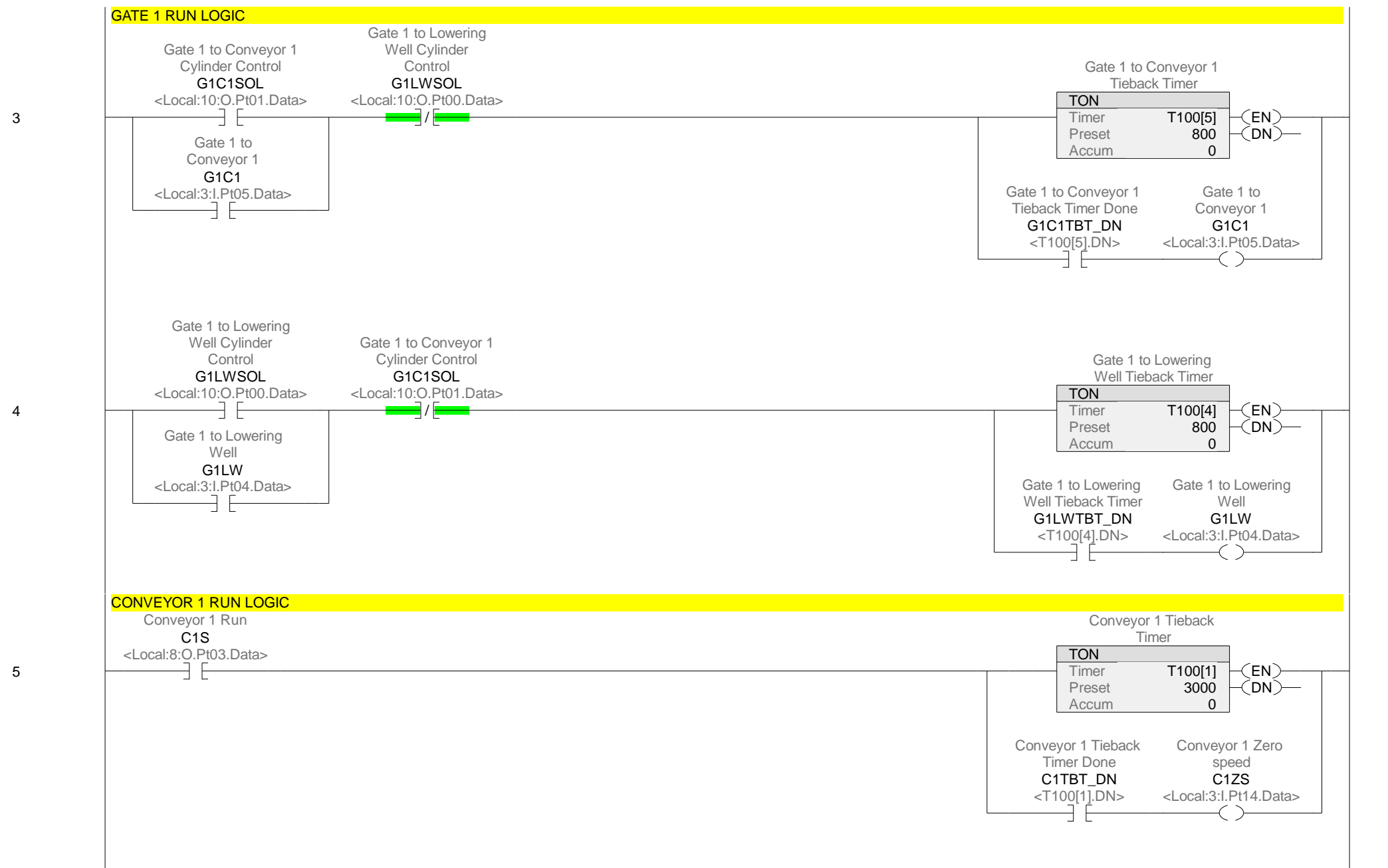


### RECLAIM FEEDER LOGIC

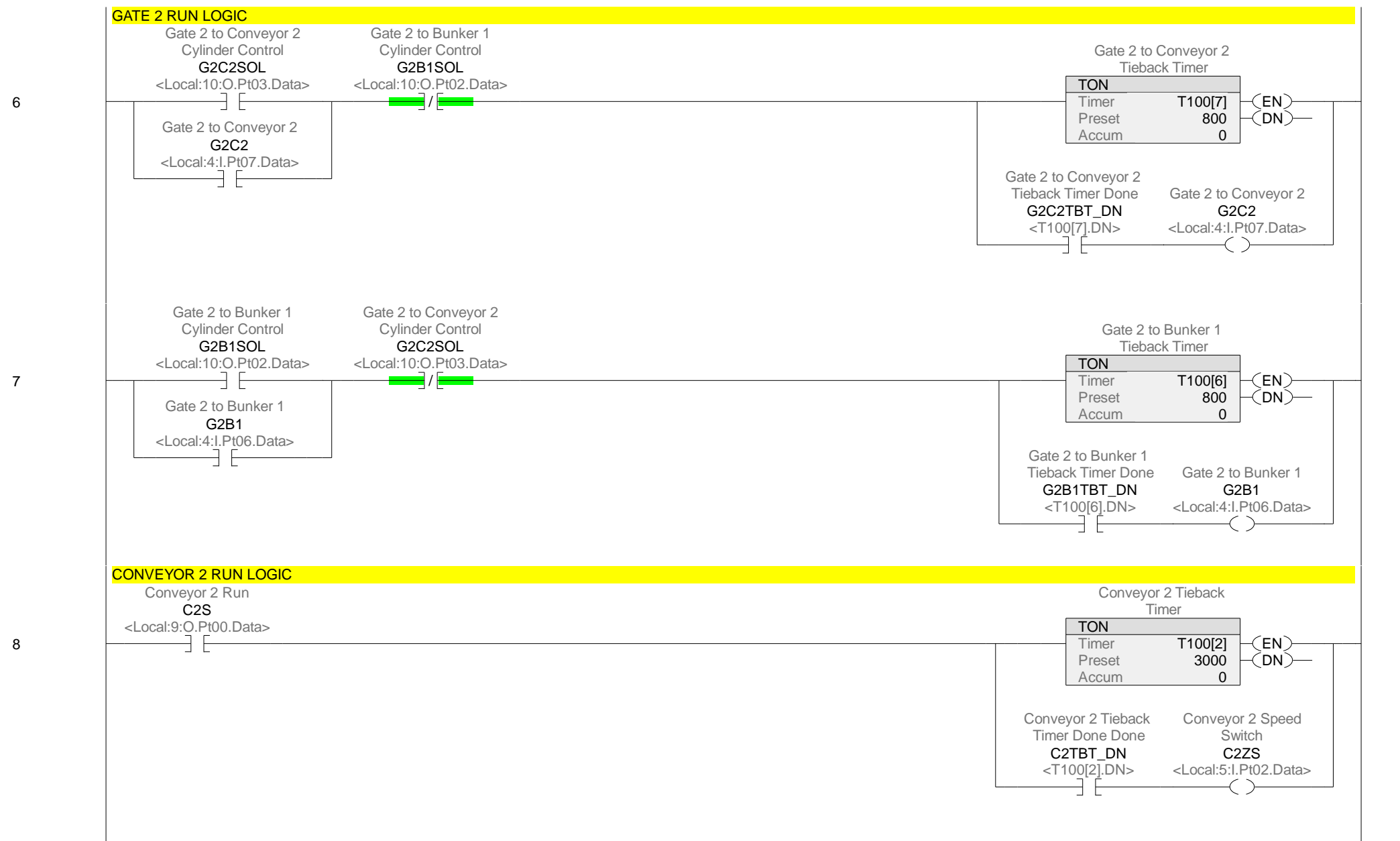


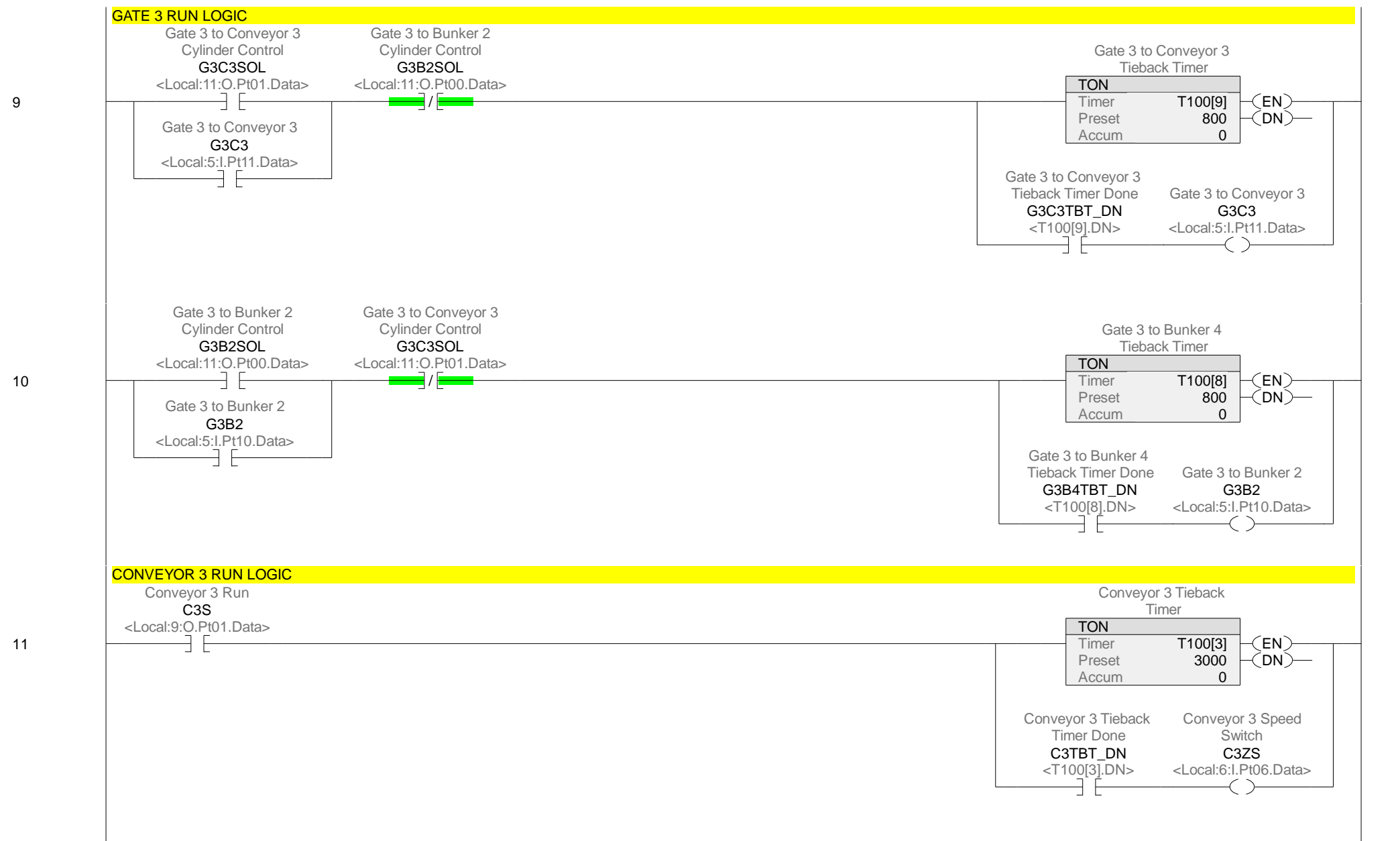
### BUCKET ELEVATOR RUN LOGIC





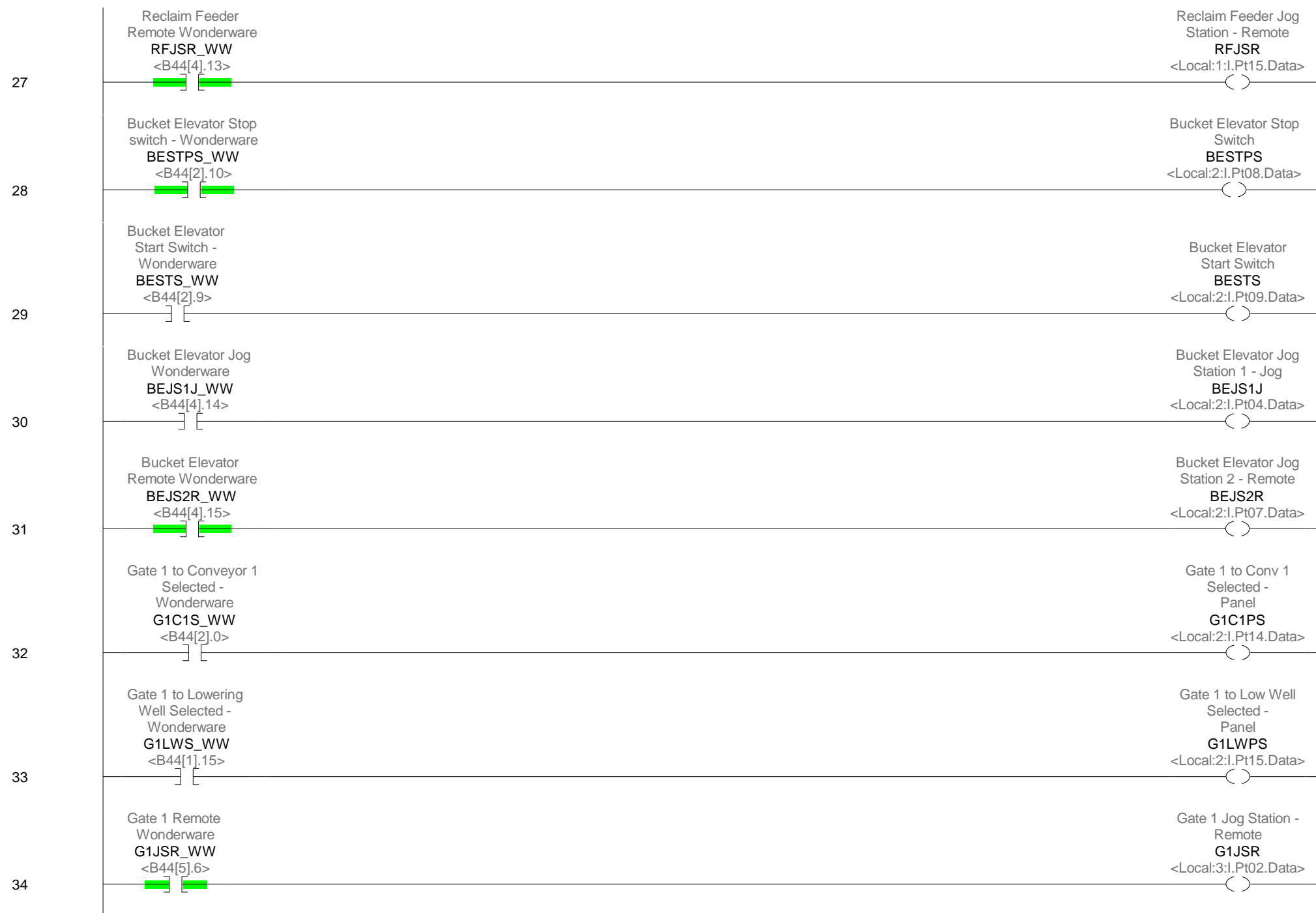






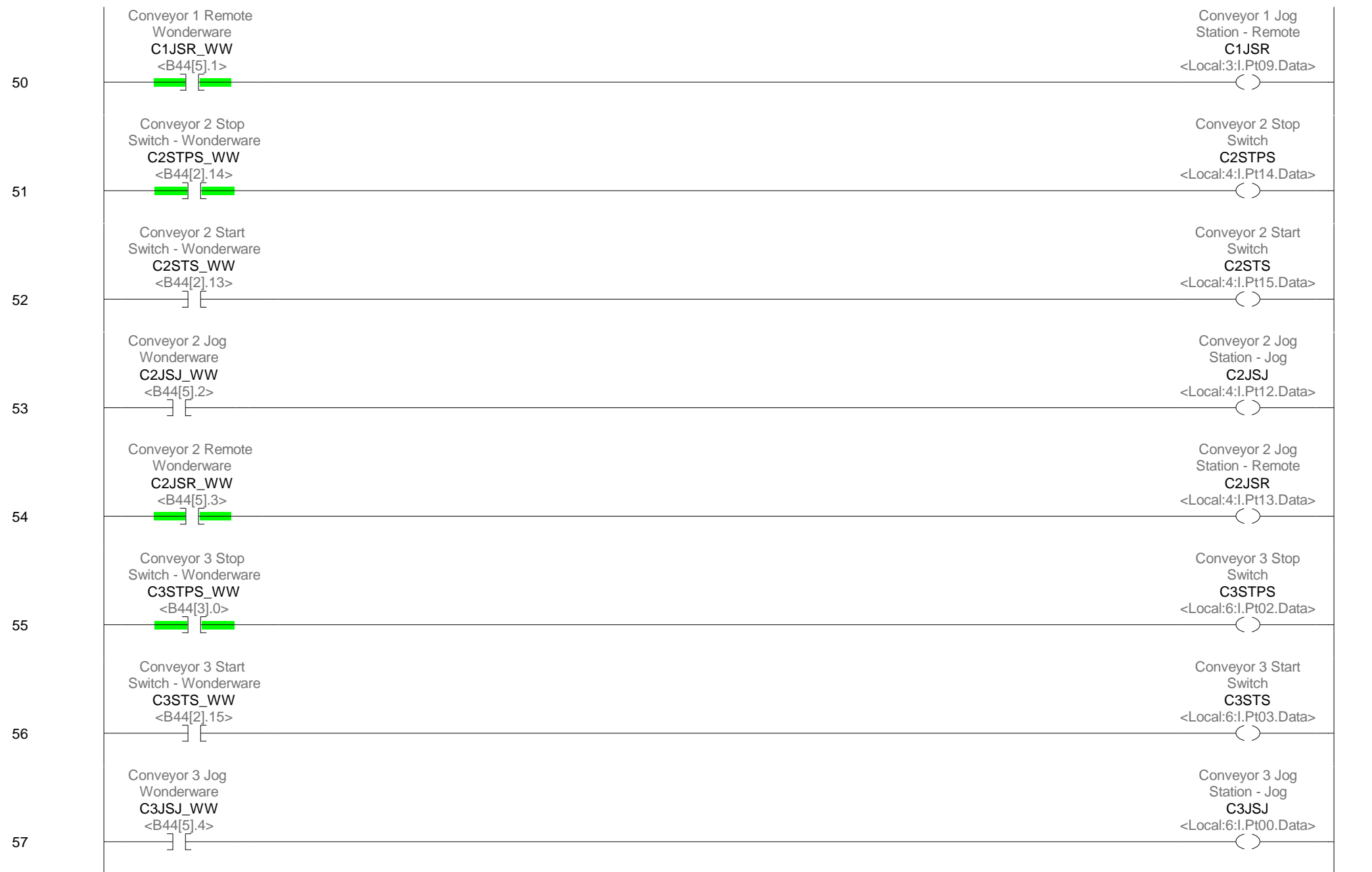




















79	Conveyor 3 Emerg Stop Simulate-Wonderware <b>C3ES_SIM_WW</b> <B44[7].9>  / 	Conveyor 3 E-Stop <b>C3ES</b> <Local:6:I.Pt05.Data> 
80	Conveyor 3 Safety Switch Simulate-Wonderware <b>C3SS_SIM_WW</b> <B44[7].10>  / 	Conveyor 3 Safety Switch <b>C3SS</b> <Local:6:I.Pt04.Data> 
81	Conveyor 3 Belt Alignment Sw Simulate-Wonderware <b>C3BA2_SIM_WW</b> <B44[7].11>  / 	Conveyor 3 Belt Alignment 2 <b>C3BA2</b> <Local:6:I.Pt07.Data> 
82	Bunker 1 High Level Probe Simulate-Wonderware <b>B1HLP_SIM_WW</b> <B44[7].12>  / 	Bunker 1 High Level Probe <b>B1HLP</b> <Local:4:I.Pt10.Data> 
83	Bunker 1 Full Level Probe Simulate-Wonderware <b>B1FLP_SIM_WW</b> <B44[7].13>  / 	Bunker 1 Full Level Probe <b>B1FLP</b> <Local:4:I.Pt11.Data> 
84	Bunker 4 High Level Probe Simulate-Wonderware <b>B4HLP_SIM_WW</b> <B44[7].14>  / 	Bunker 2 high level probe <b>B2HLP</b> <Local:5:I.Pt14.Data> 
85	Bunker 4 Full Level Probe Simulate-Wonderware <b>B4FLP_SIM_WW</b> <B44[7].15>  / 	Bunker 2 Full Level Probe <b>B2FLP</b> <Local:5:I.Pt15.Data> 



0

UNLOADING FEEDER RUN LOGIC.

Unloading Feeder Jog  
Station - Jog  
UFJSJ  
<Local:1:I.Pt08.Data>

Unloading Feeder Jog  
Station - Remote  
UFJSR  
<Local:1:I.Pt09.Data>

Unloading Feeder  
Stop Switch  
UFSTPS  
<Local:1:I.Pt10.Data>

Manual Relay  
MR  
<B40[8].2>

Unloading Feeder  
Start Switch  
UFSTS  
<Local:1:I.Pt11.Data>

System Purge Relay  
SPR  
<B40[8].13>

Unloading Feeder  
Selected Relay  
UFSR  
<B40[5].4>

Bucket Elevator Zero  
Speed Relay  
BEZSR  
<B40[0].3>

Unloading Feeder  
Running Relay  
UFRR  
<B40[5].3>

Auto Relay  
AR  
<B40[7].8>

Auto Start Relay  
ASR  
<B40[7].9>

Unloading Feeder  
Running Relay  
UFRR  
<B40[5].3>

Unloading Feeder  
Safety Switch Relay  
UFSSR  
<B40[5].2>

E-Stop Relay  
ESR  
<B40[6].14>

Unloading Feeder Run  
Timer

TOF	
Timer	T4[19]
Preset	100
Accum	100

(EN)  
(DN)

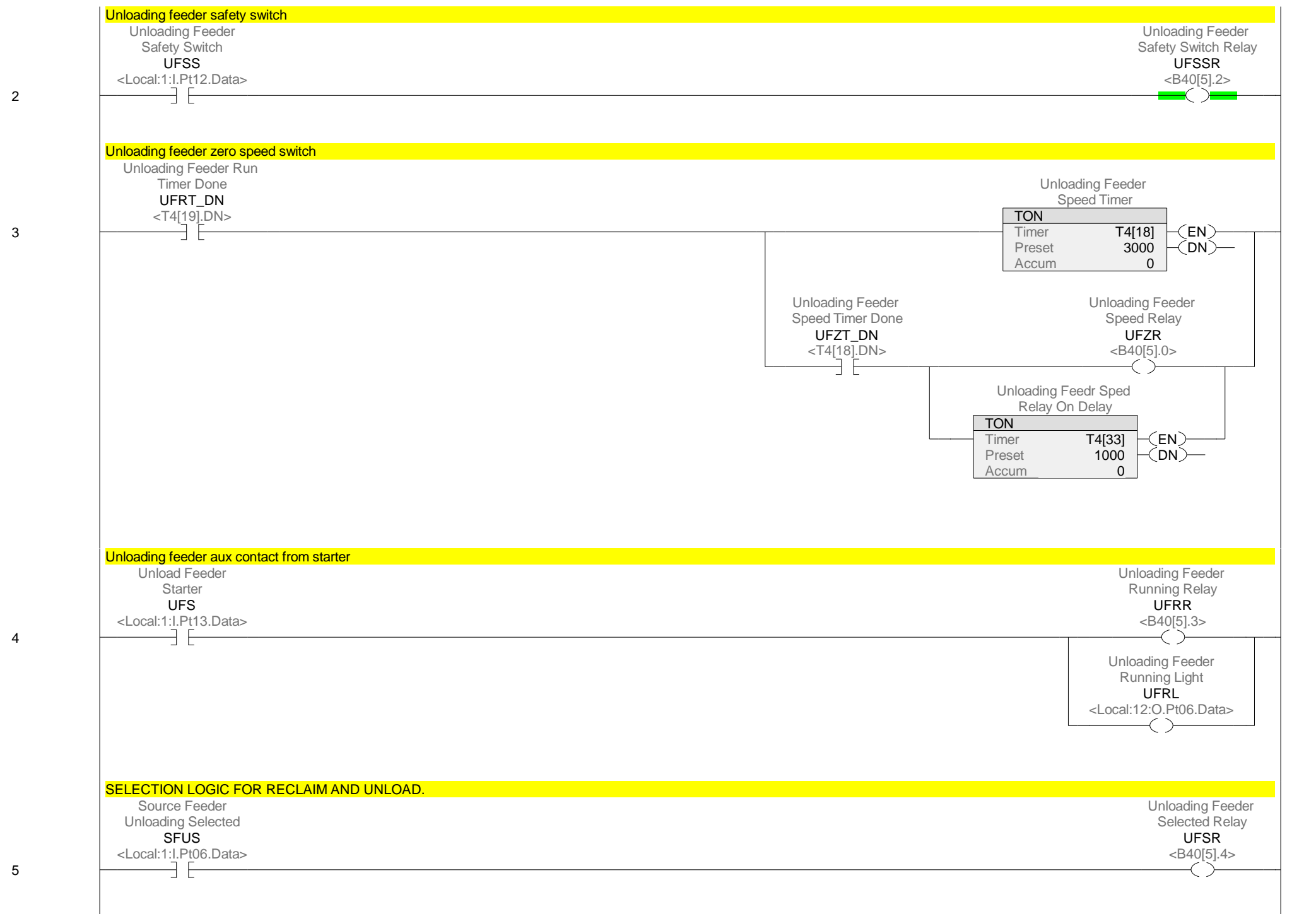
Reclaim Feeder Run  
RFR  
<Local:8:O.Pt00.Data>

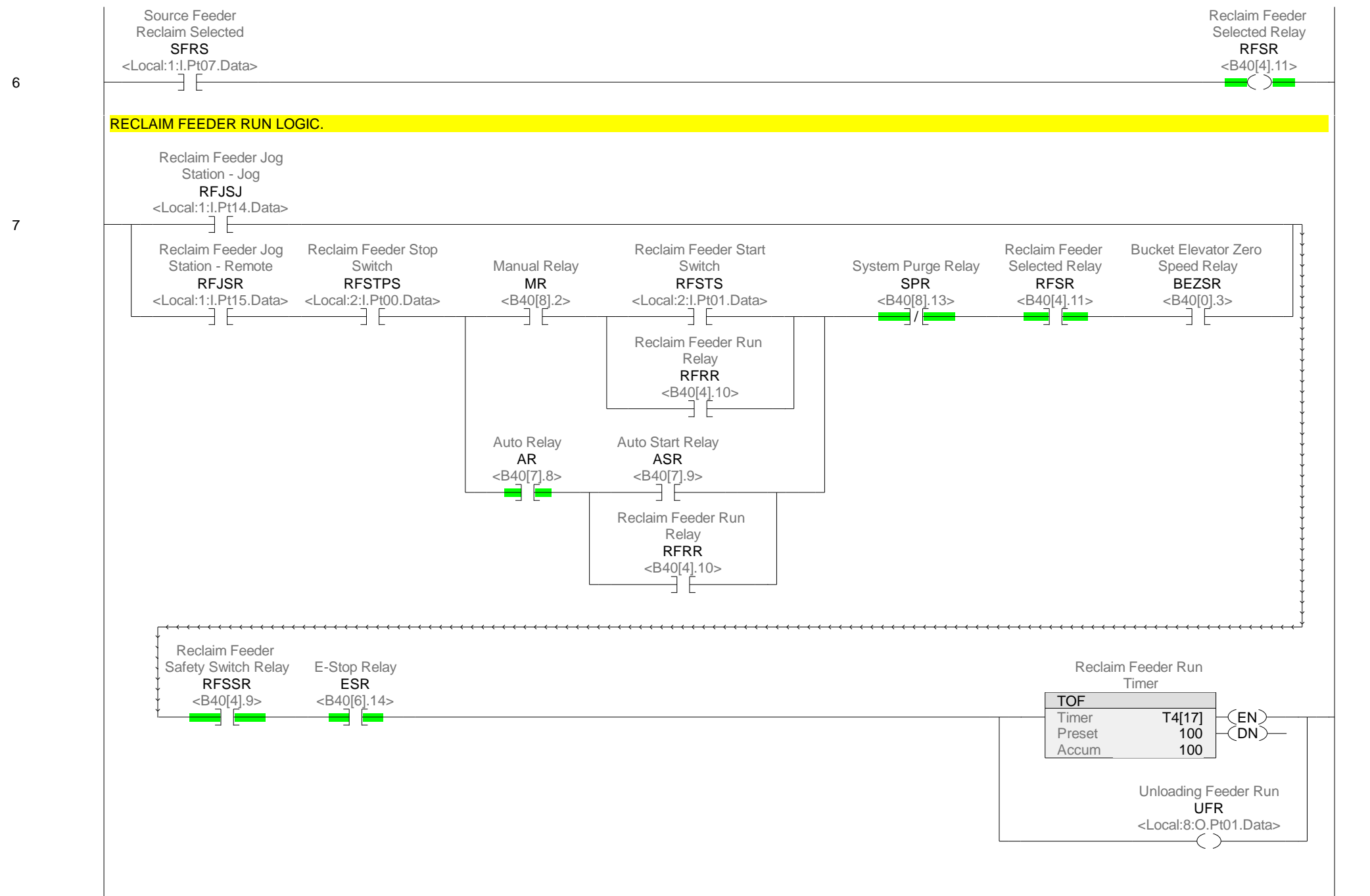
Unloading feeder remote selected

Unloading Feeder Jog  
Station - Remote  
UFJSR  
<Local:1:I.Pt09.Data>

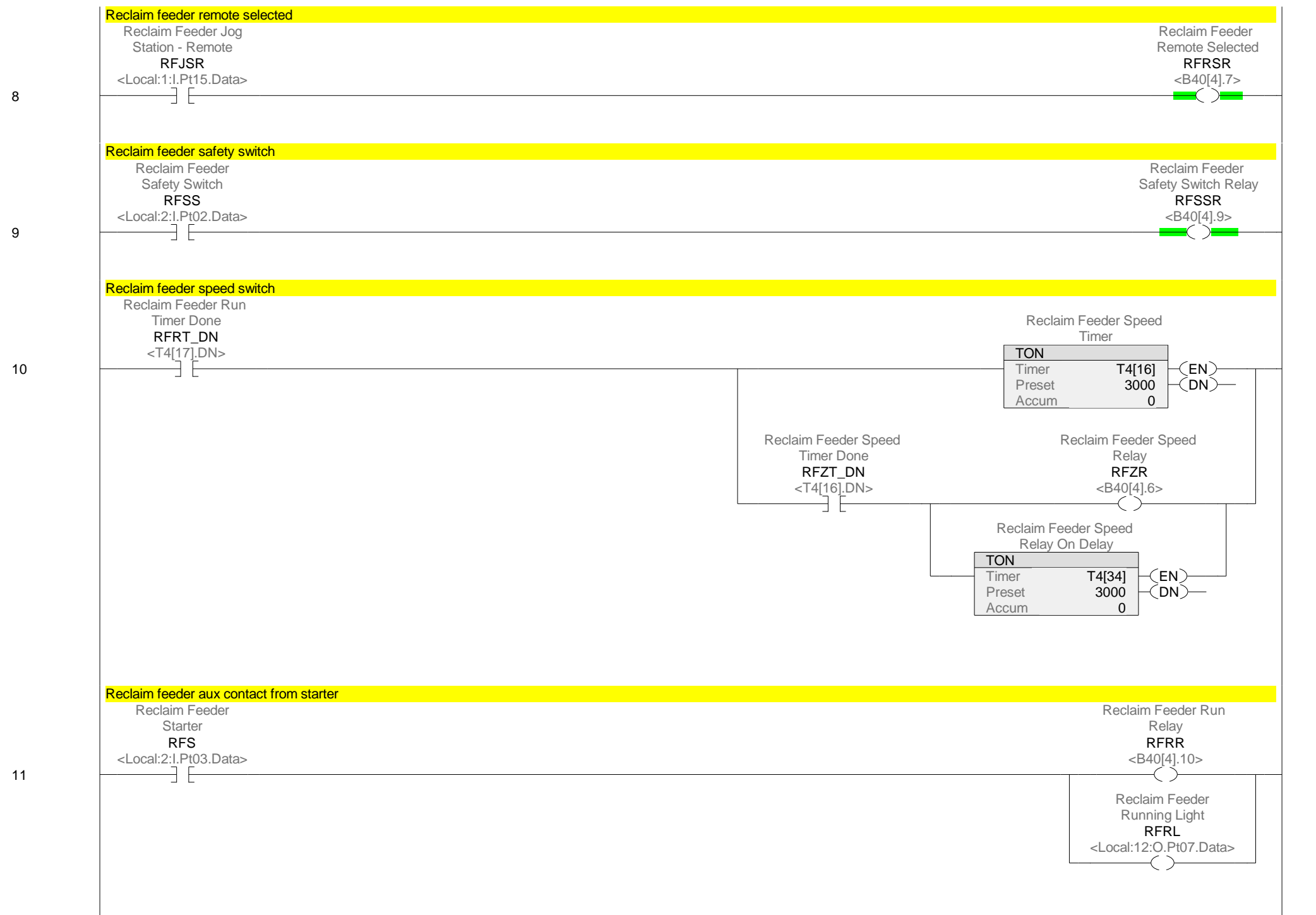
Unloading Feeder  
Remote Selected  
Relay  
UFRSR  
<B40[5].1>

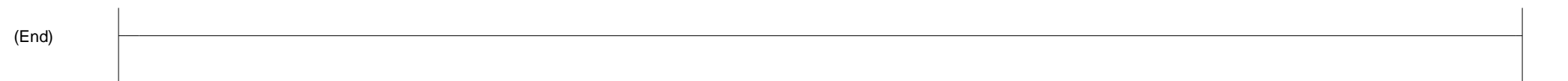
1



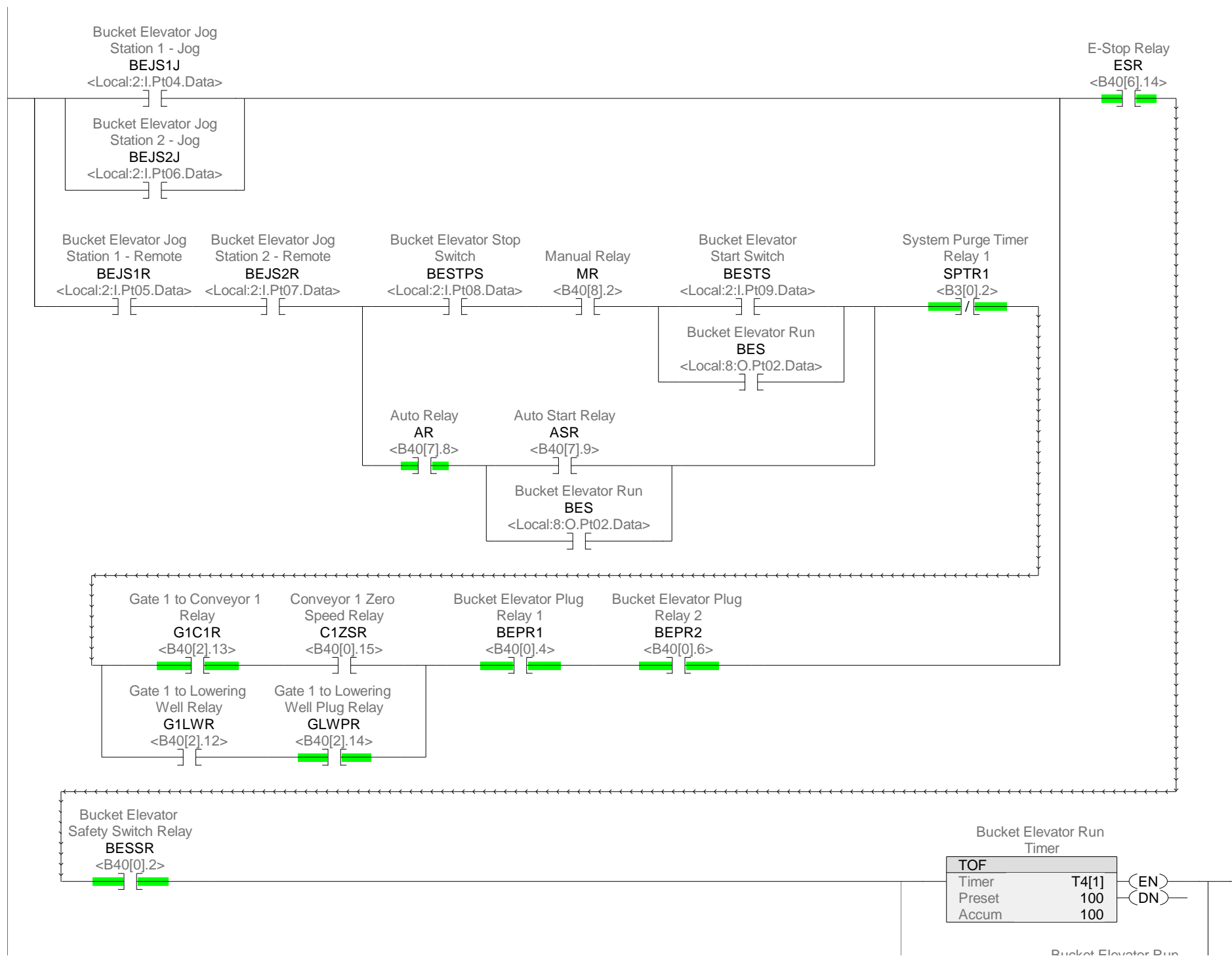


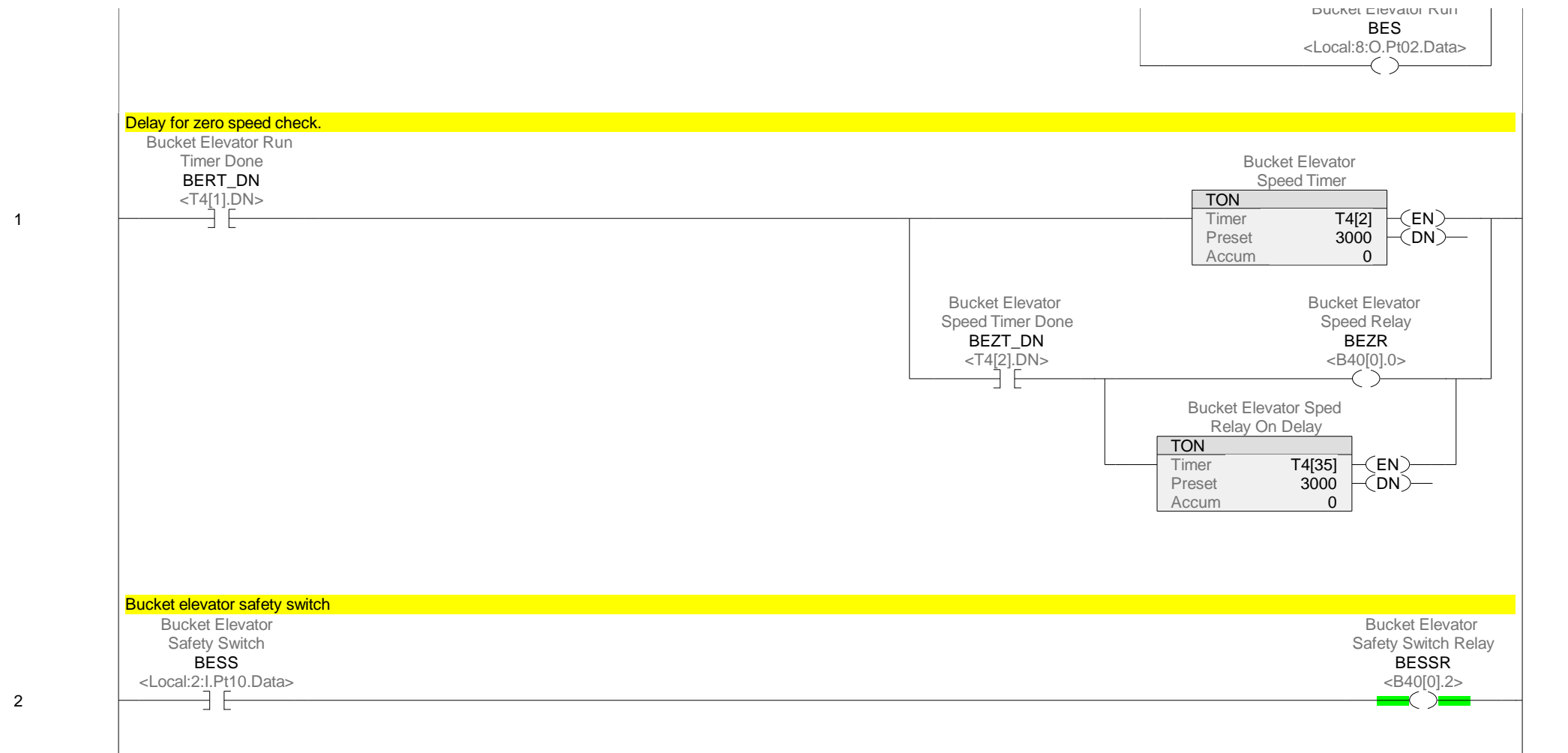


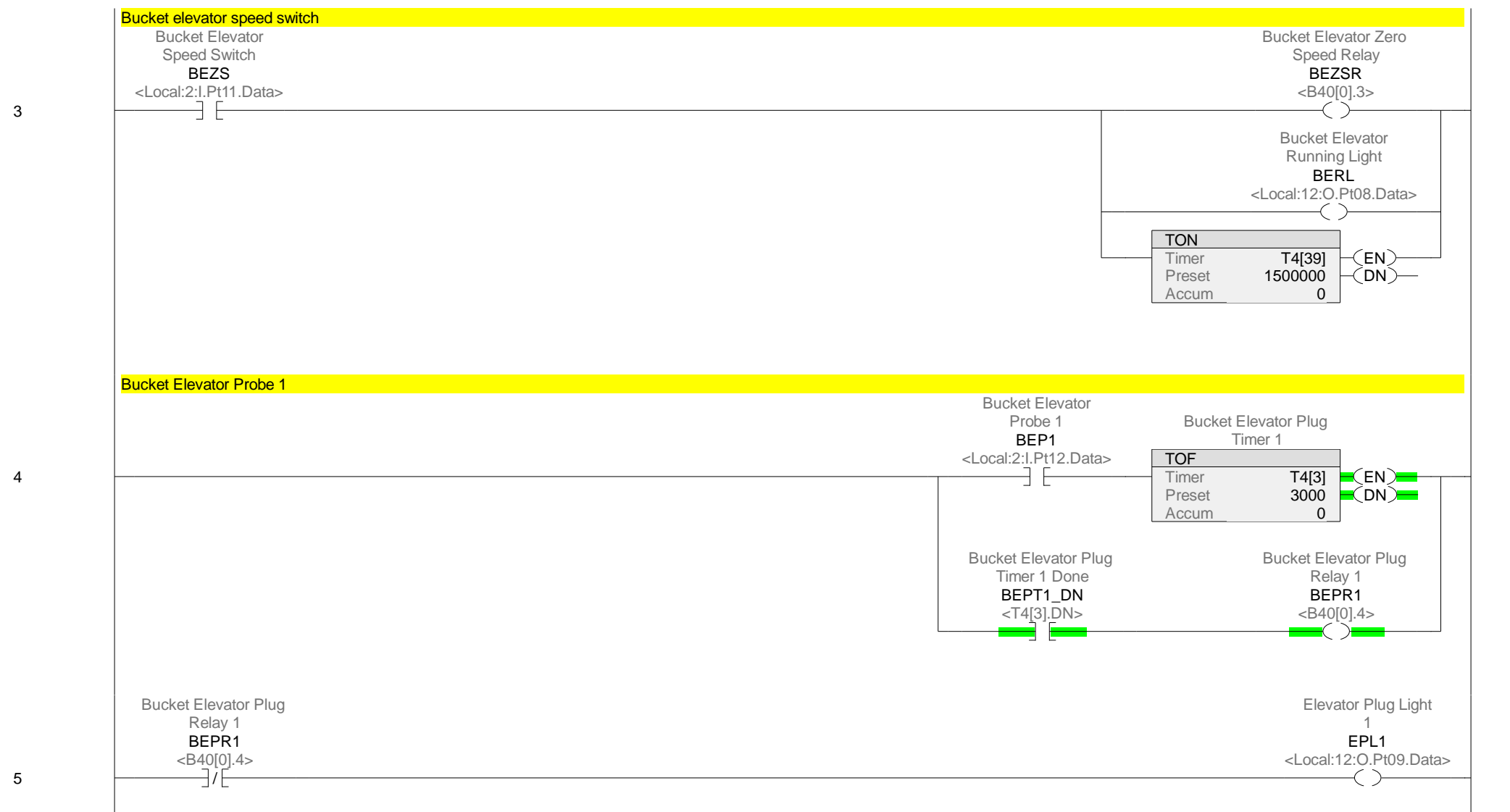


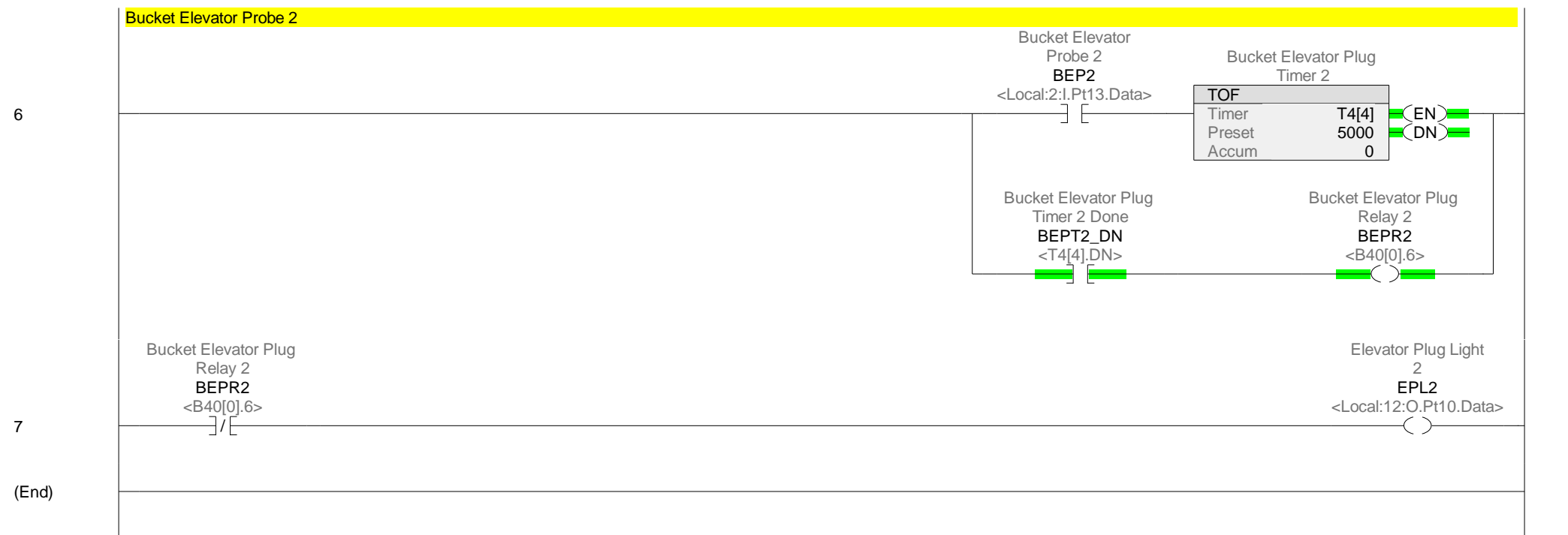


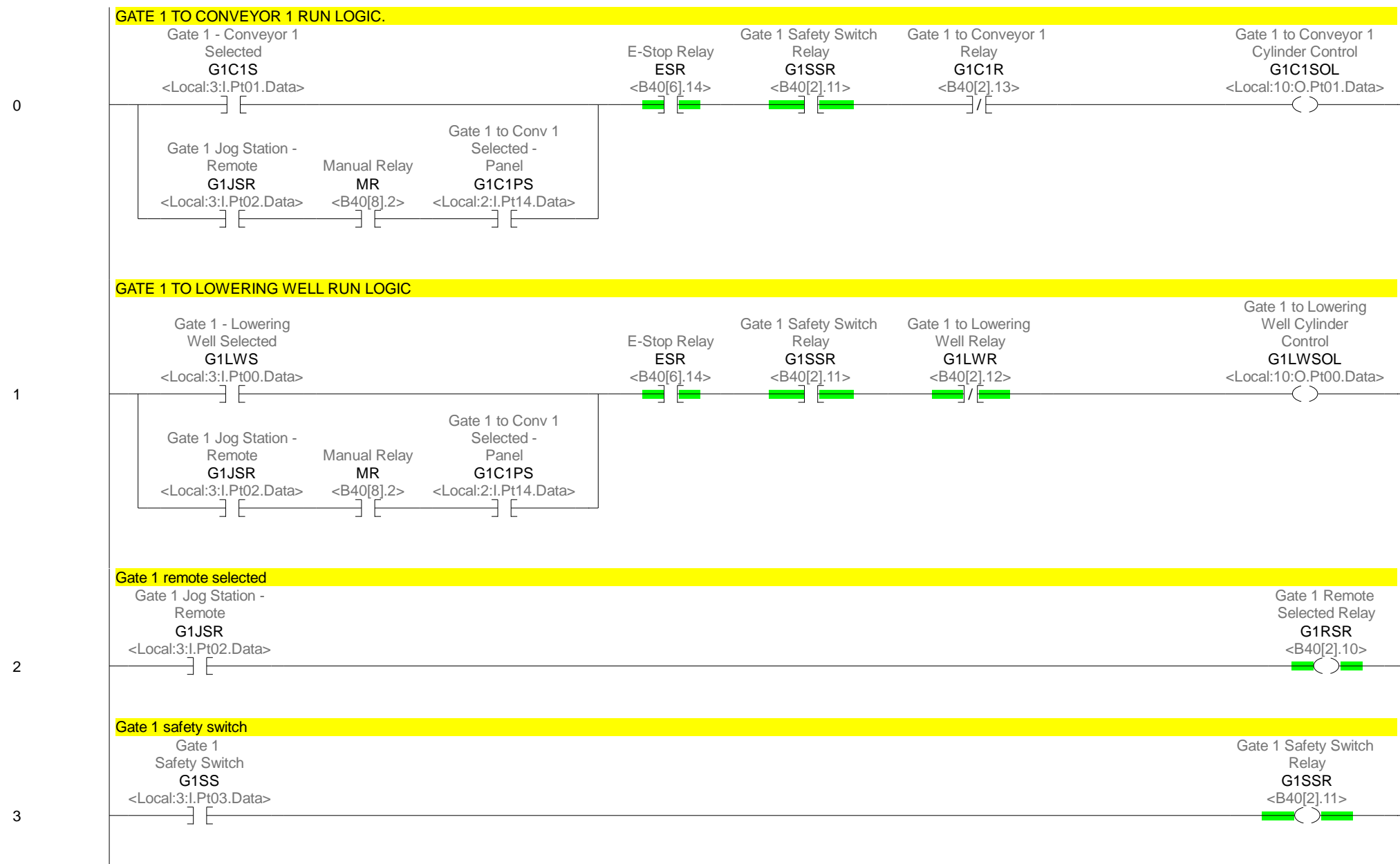
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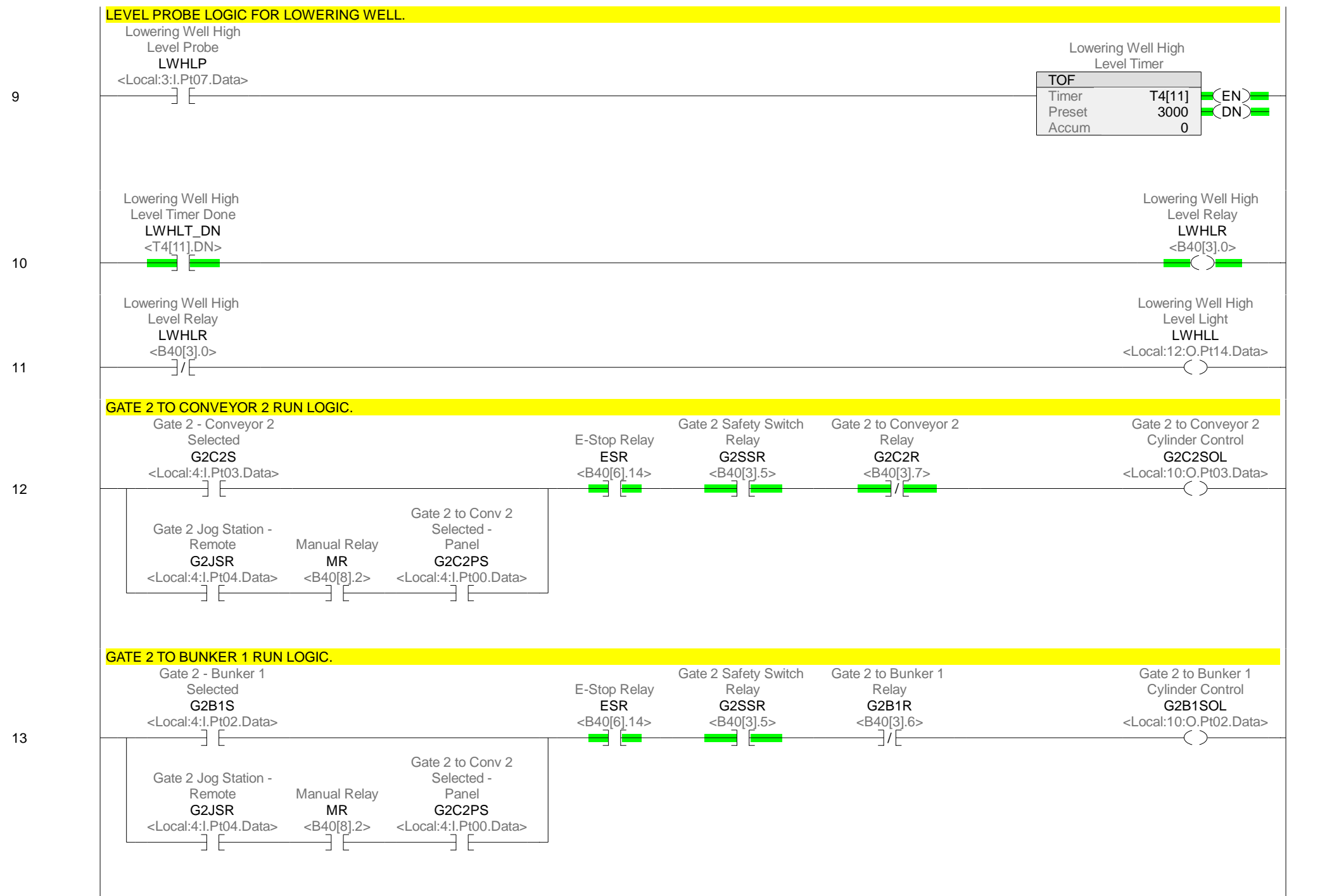


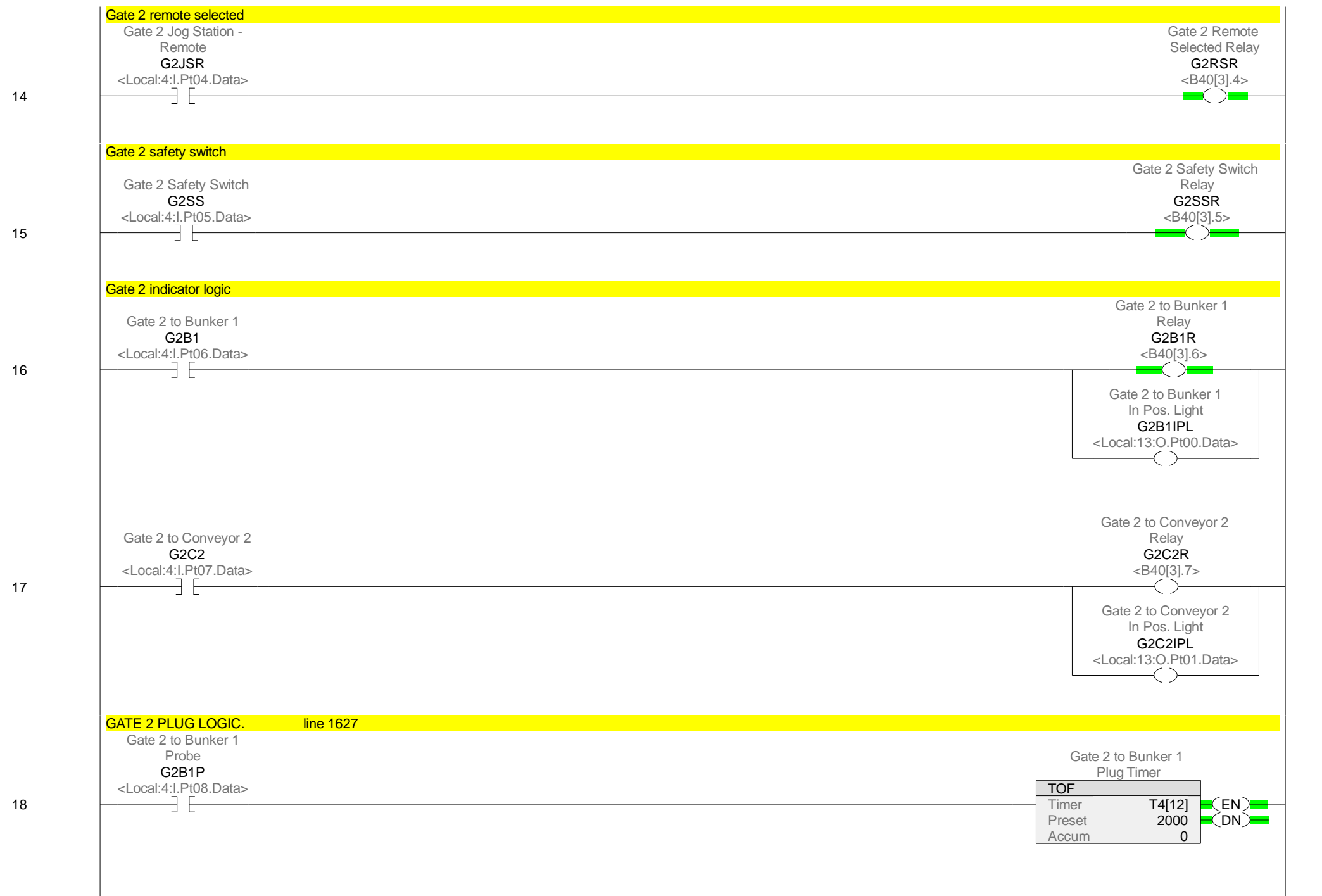


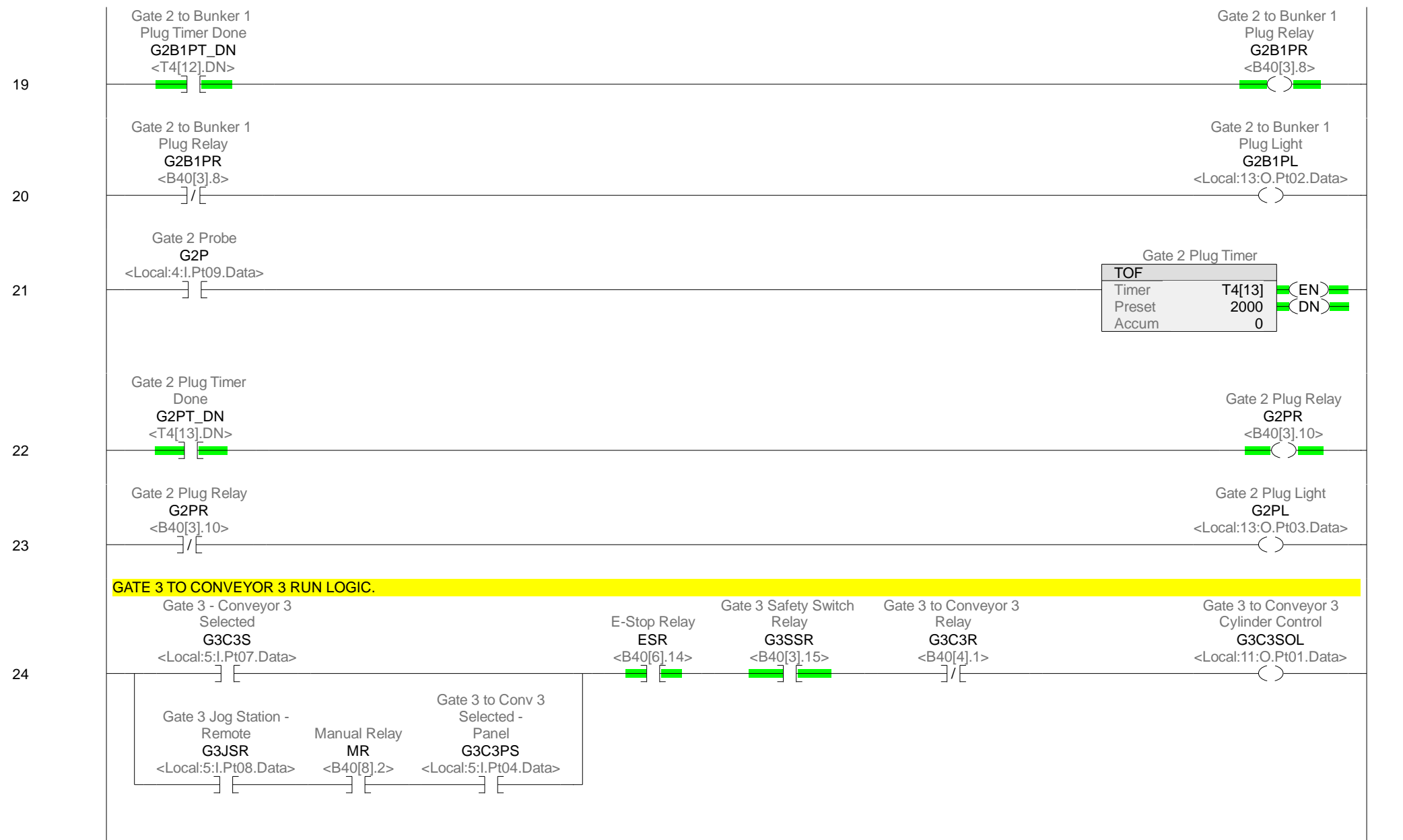


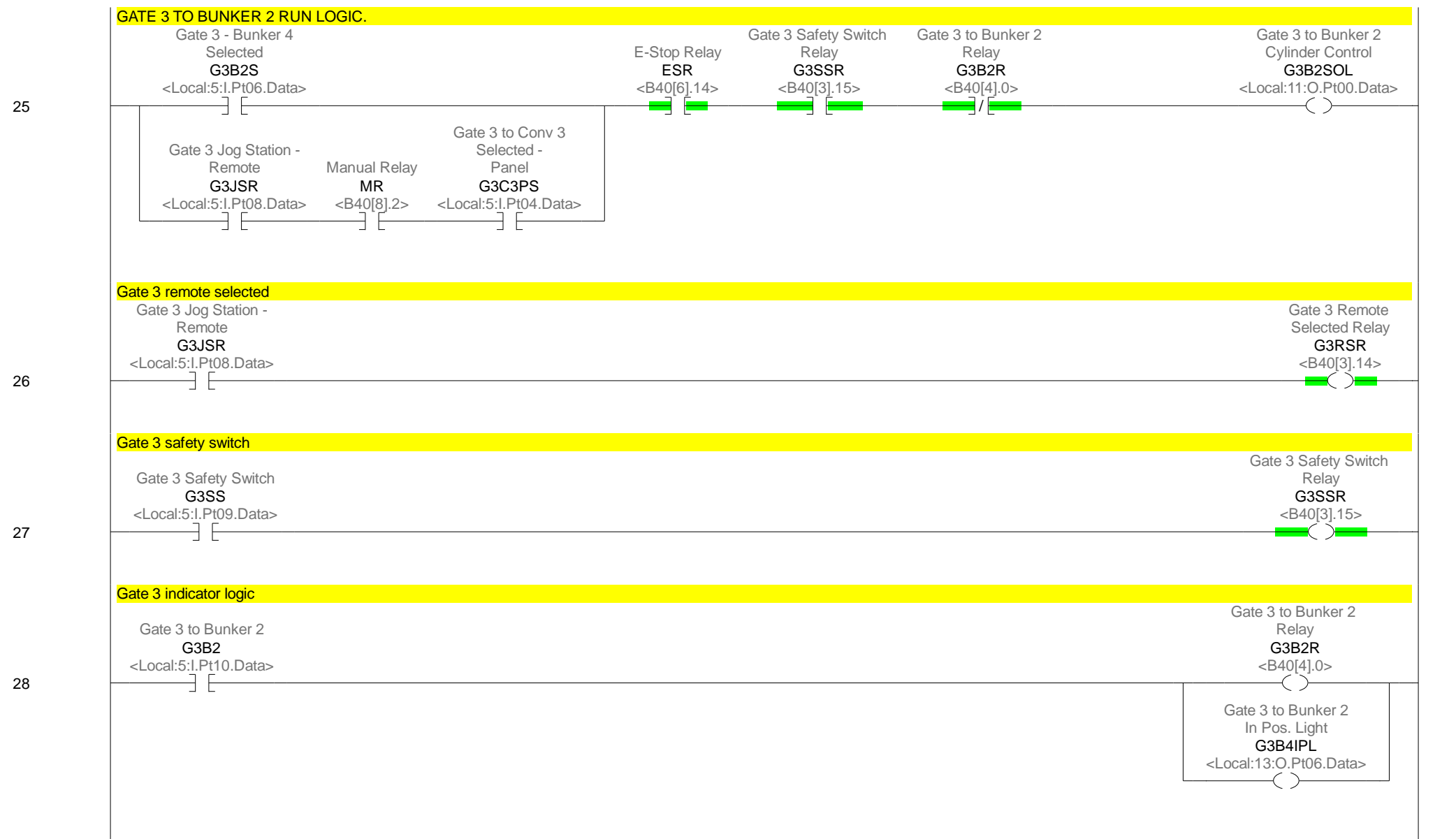


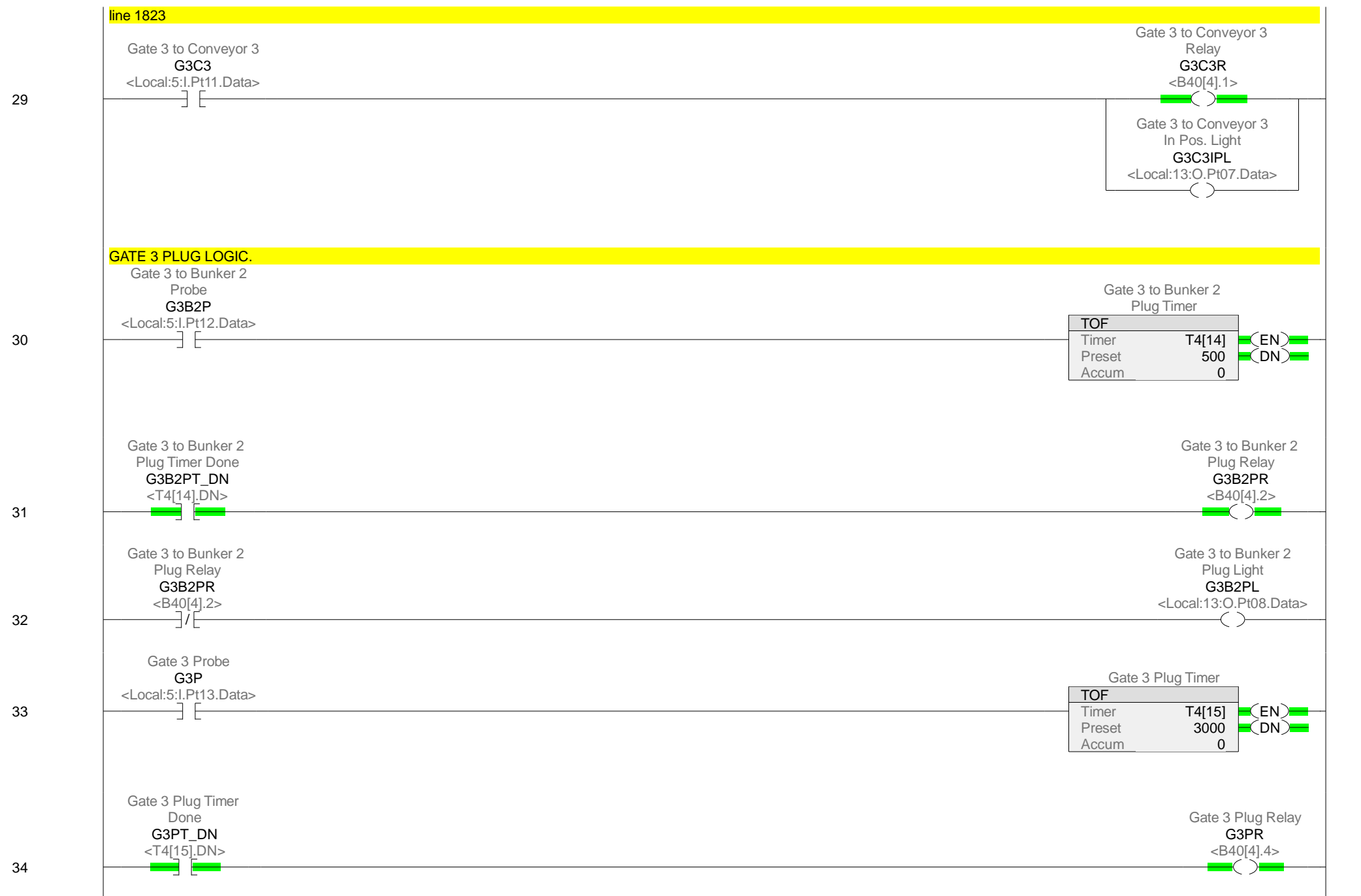


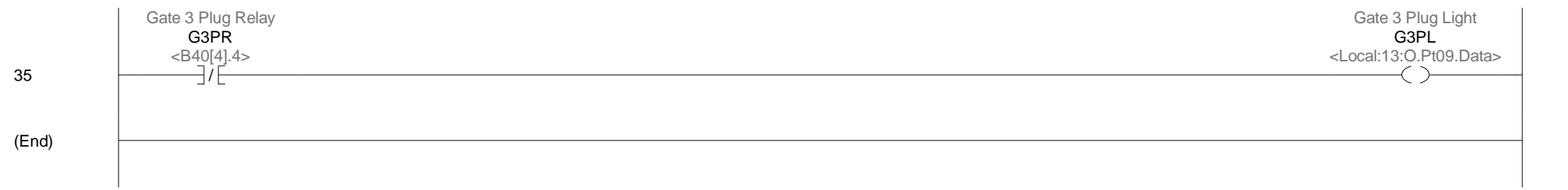












## CONVEYOR 1 RUN LOGIC

\*\*\*\*\*

\*\* Remove short around Gate 2 to Bunker 1 plug when bunker 1  
\*\* high level switch installed \*\*

\*\*\*\*\*

Conveyor 1 Jog  
Station - Jog  
C1JSJ  
<Local:3:I.Pt08.Data>

Conveyor 1 Jog  
Station - Remote  
C1JSR  
<Local:3:I.Pt09.Data>

Conveyor 1 Stop  
Switch  
C1STPS  
<Local:3:I.Pt10.Data>

Manual Relay  
MR  
<B40[8].2>

Conveyor 1 Start  
Switch  
C1STS  
<Local:3:I.Pt11.Data>

Gate 2 to Conveyor 2  
Relay  
G2C2R  
<B40[3].7>

Conveyor 2 Zero  
Speed Relay  
C2ZSR  
<B40[1].9>

Conveyor 1 Zero  
Speed Relay  
C1ZSR  
<B40[0].15>

Gate 2 to Bunker 1  
Relay  
G2B1R  
<B40[3].6>

Gate 2 to Bunker 1  
Plug Relay  
G2B1PR  
<B40[3].8>

Auto Relay  
AR  
<B40[7].8>

Auto Start Relay  
ASR  
<B40[7].9>

Always on for  
shorting around  
contacts  
ALWAYS\_ON  
<B3[0].0>

Conveyor 1 Zero  
Speed Relay  
C1ZSR  
<B40[0].15>

System Purge Timer  
Relay 2  
SPTR2  
<B3[0].3>

Gate 2 Plug Relay  
G2PR  
<B40[3].10>

Conveyor 1 Belt  
Alignment Relay  
C1BAR  
<B40[1].0>

Gate 1 to Conveyor 1  
Relay  
G1C1R  
<B40[2].13>

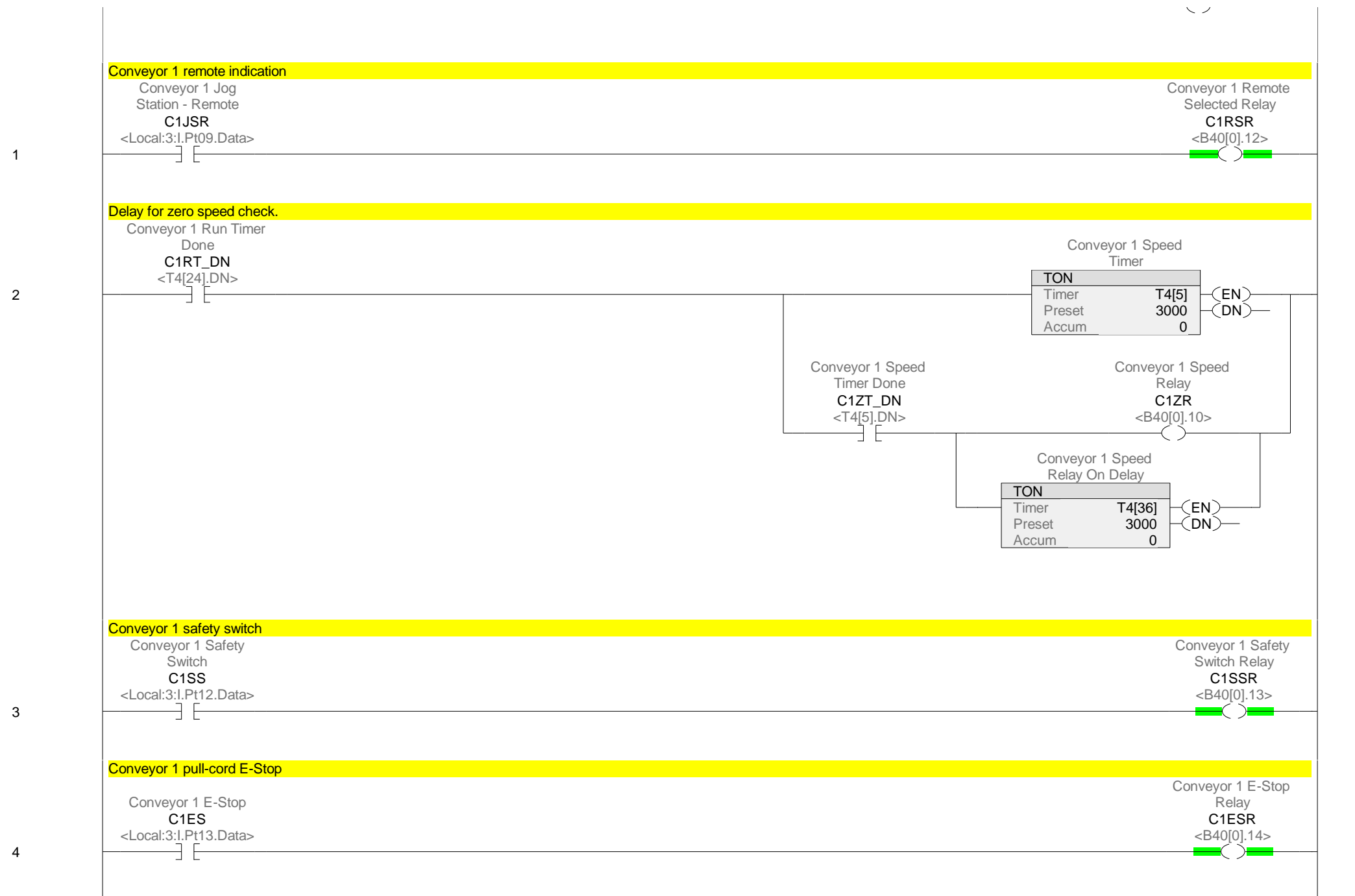
E-Stop Relay  
ESR  
<B40[6].14>

Conveyor 1 Safety  
Switch Relay  
C1SSR  
<B40[0].13>

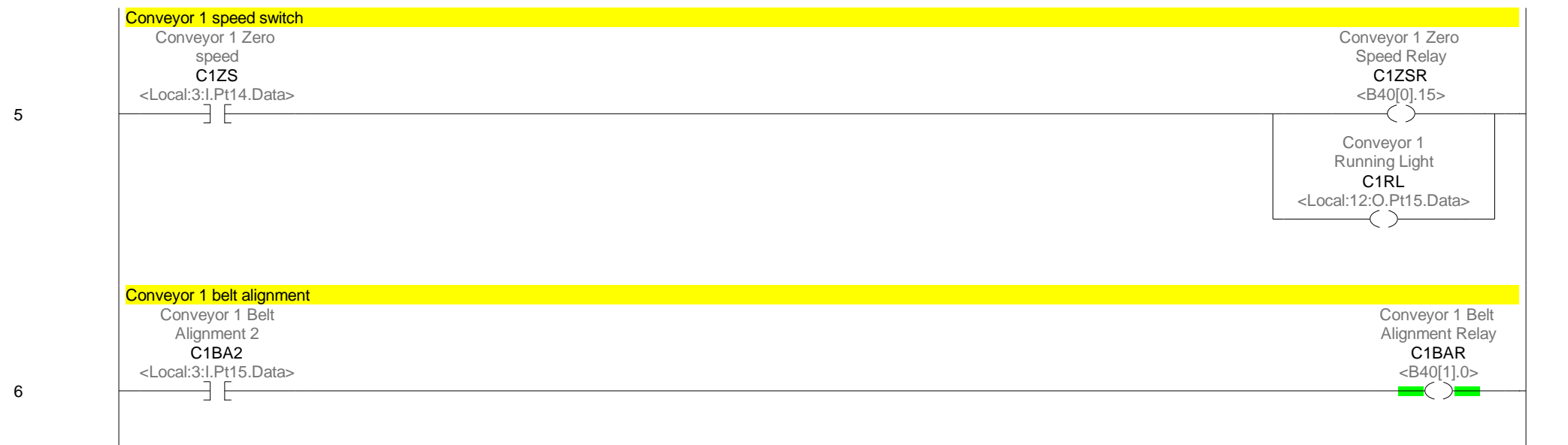
Conveyor 1 E-Stop  
Relay  
C1ESR  
<B40[0].14>

Conveyor 1 Run Timer  
TOF  
Timer T4[24]  
Preset 100  
Accum 100

Conveyor 1 Run  
C1S  
<Local:8:O.Pt03.Data>

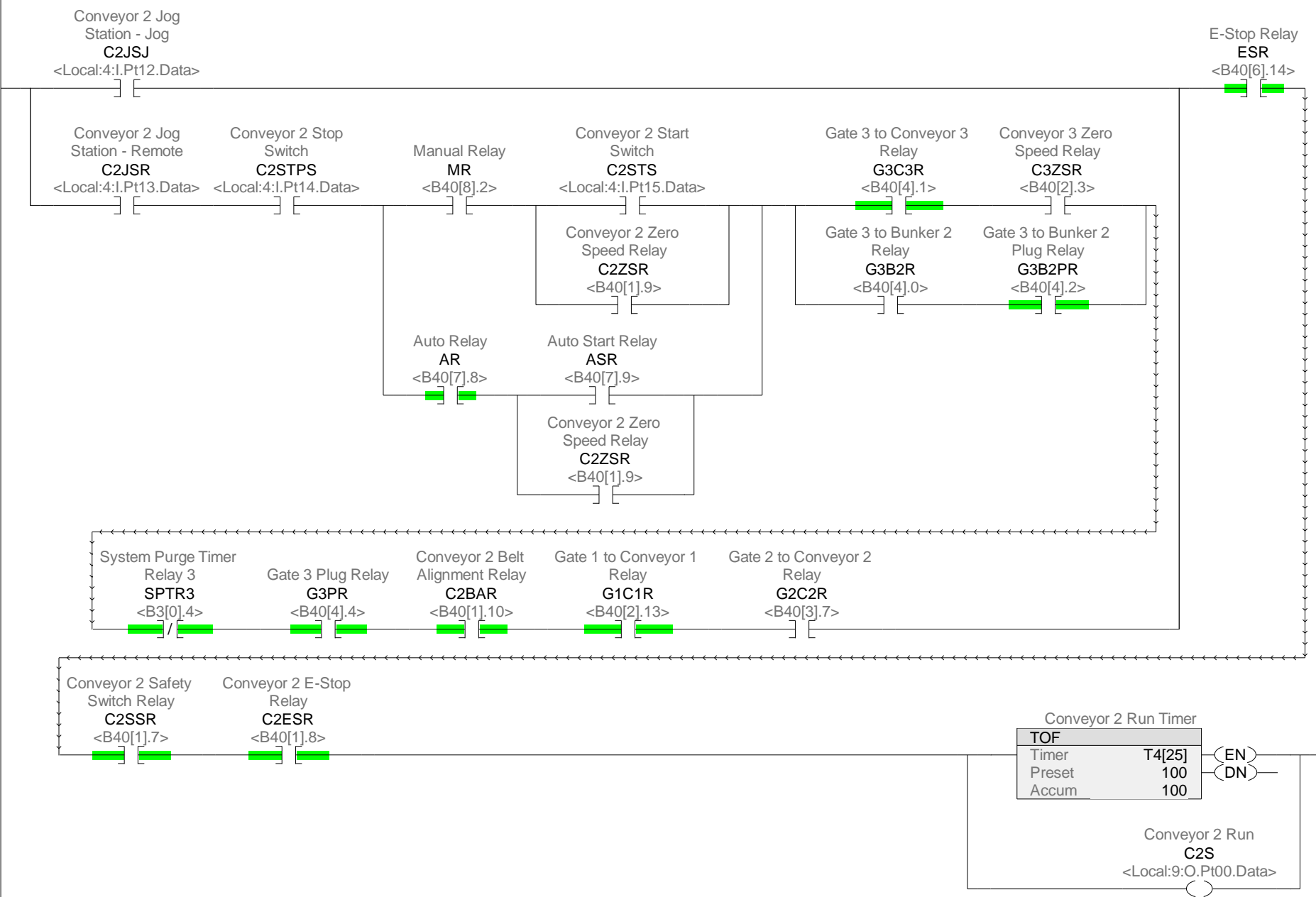


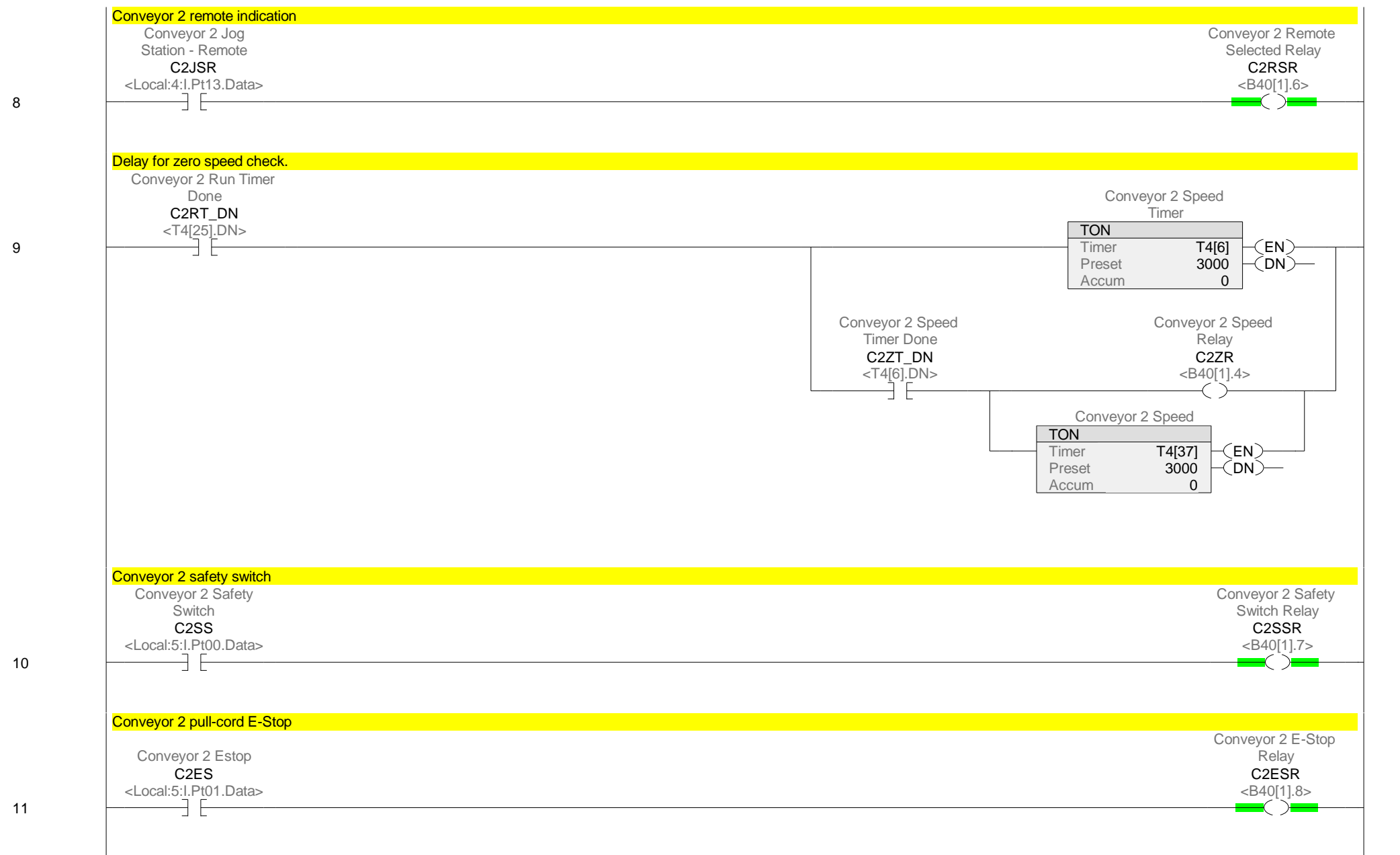


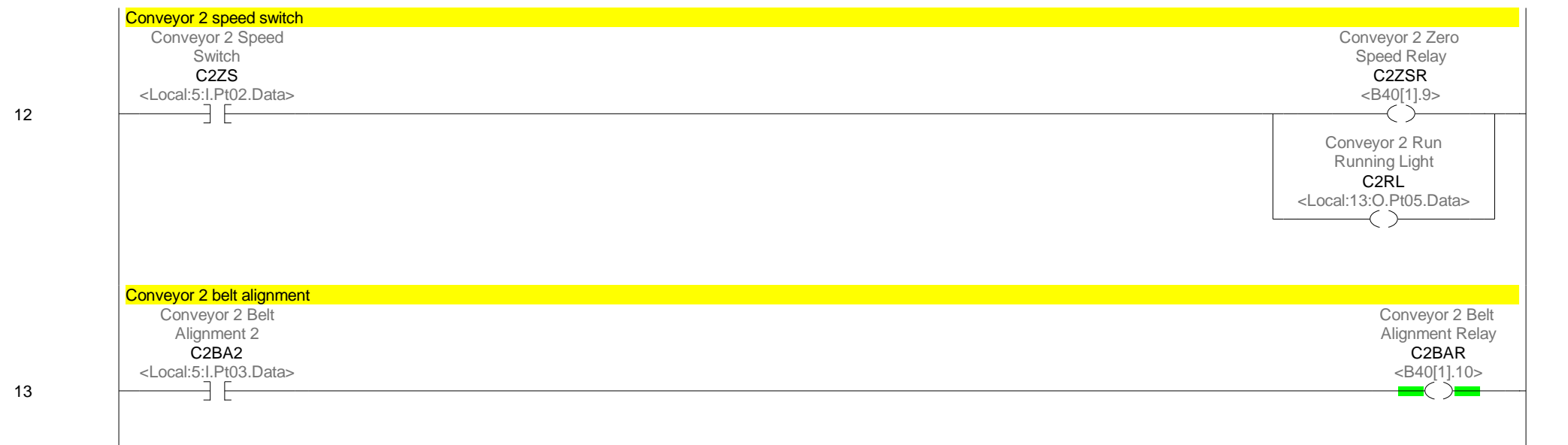


## CONVEYOR 2 RUN LOGIC. line 1703

7

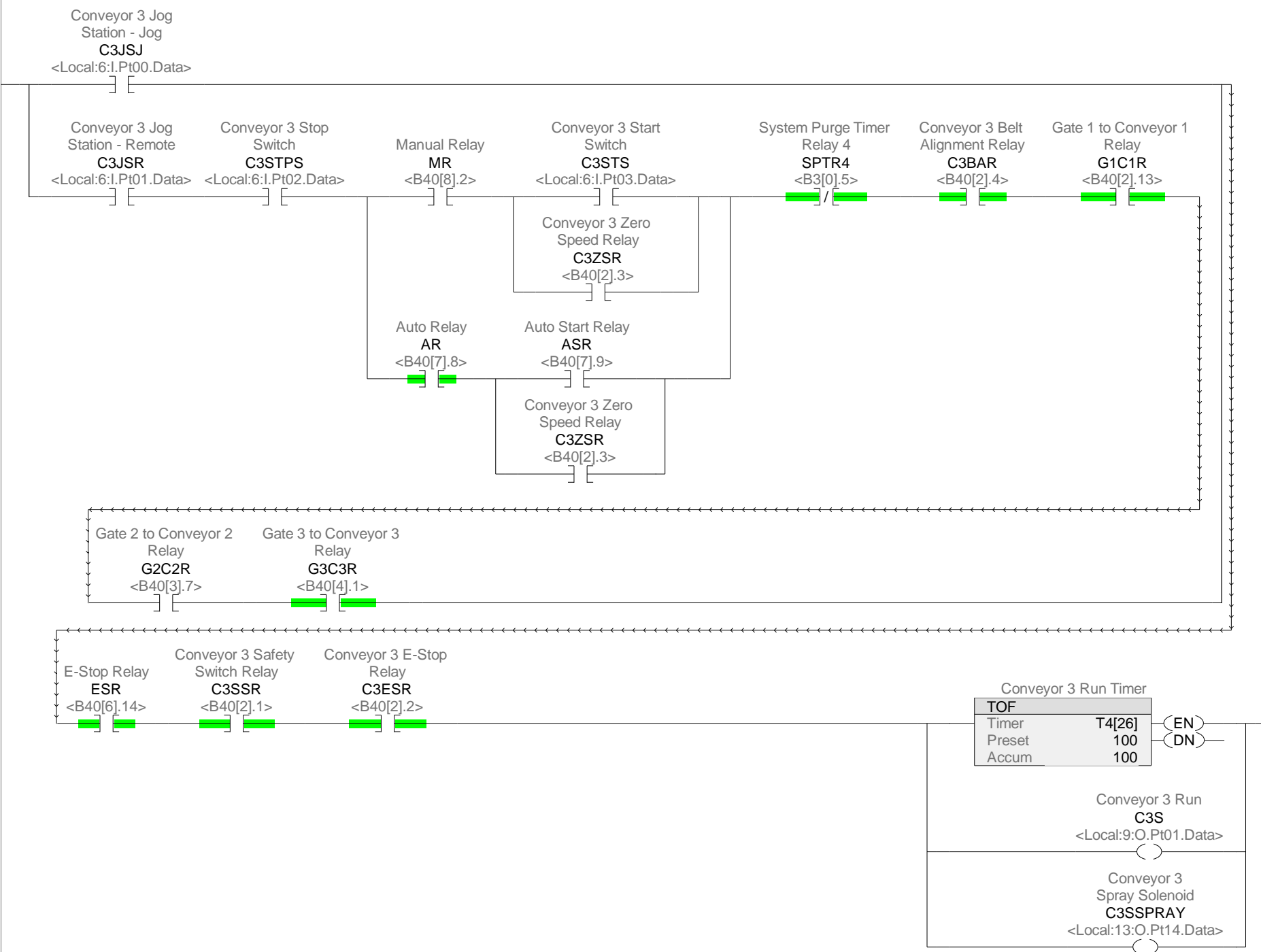


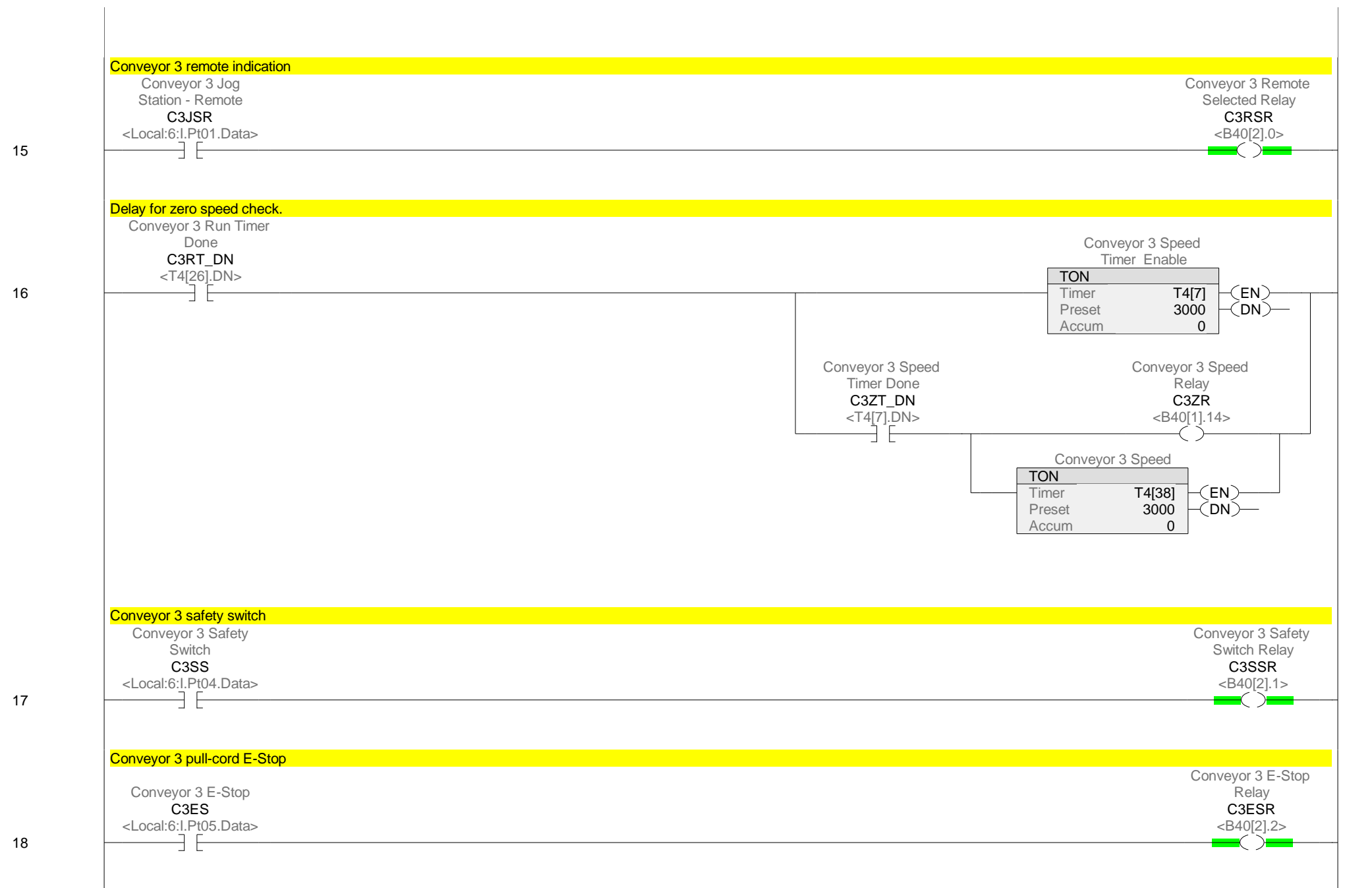


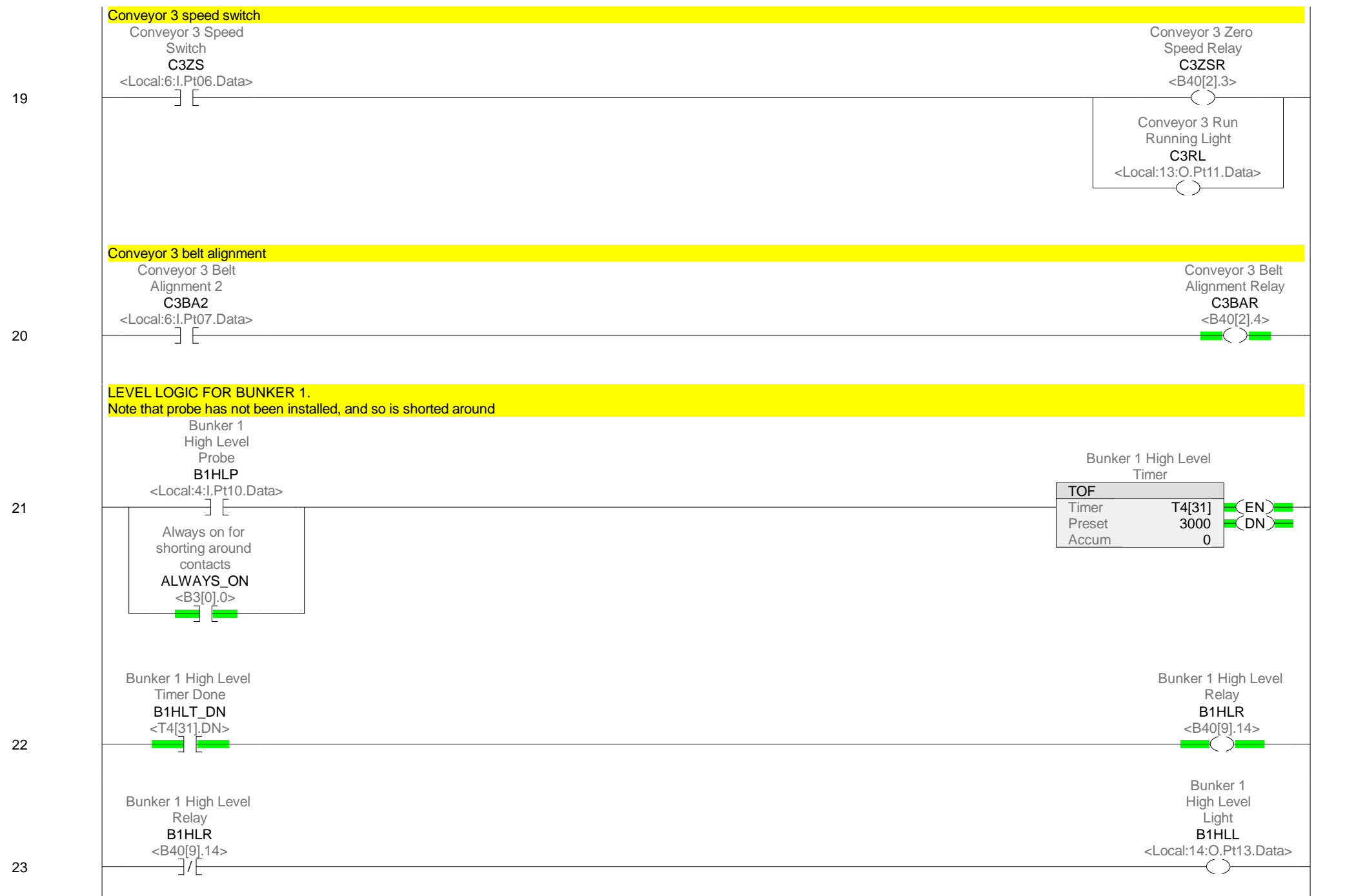


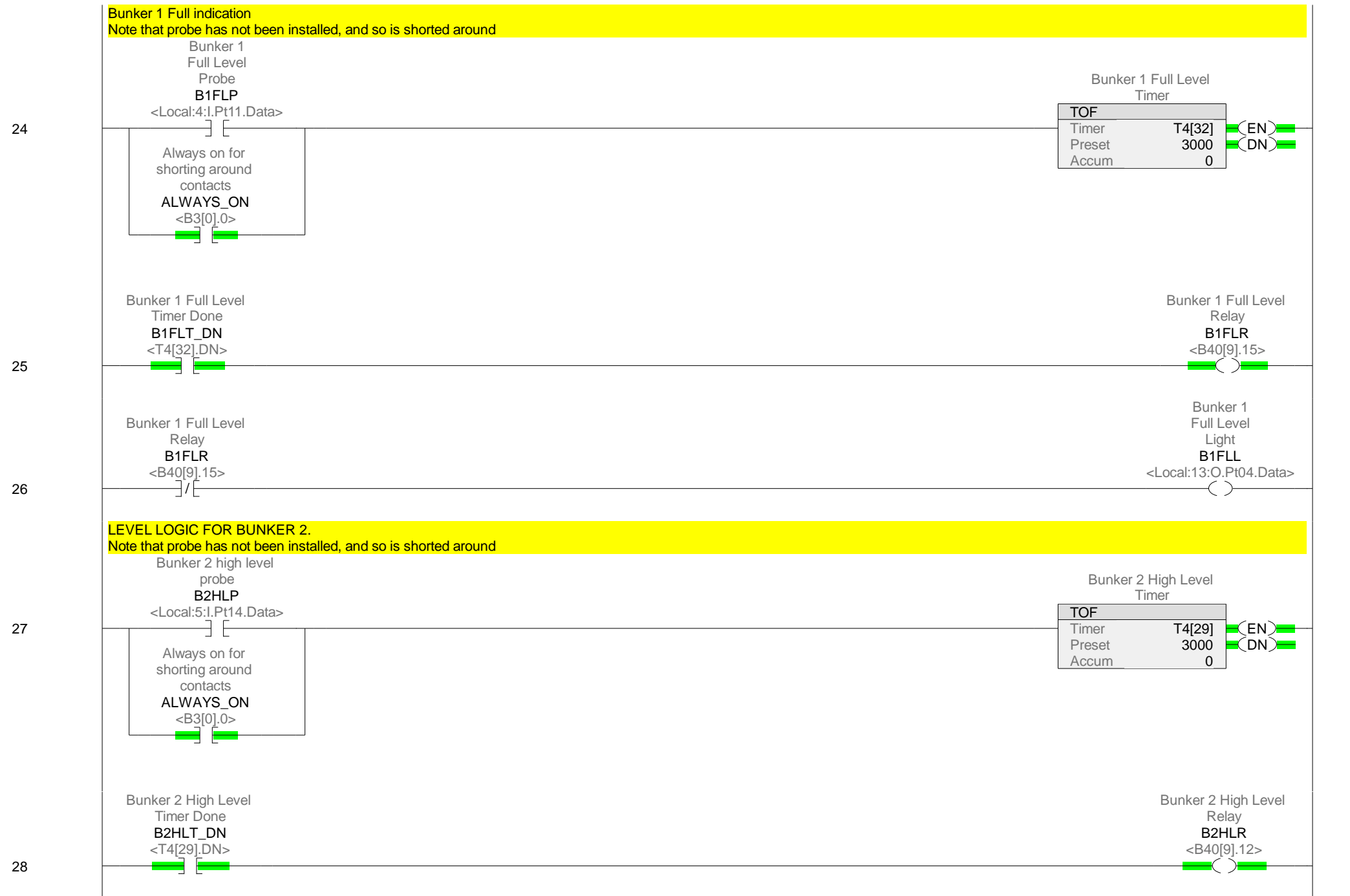
## CONVEYOR 3 RUN LOGIC

14

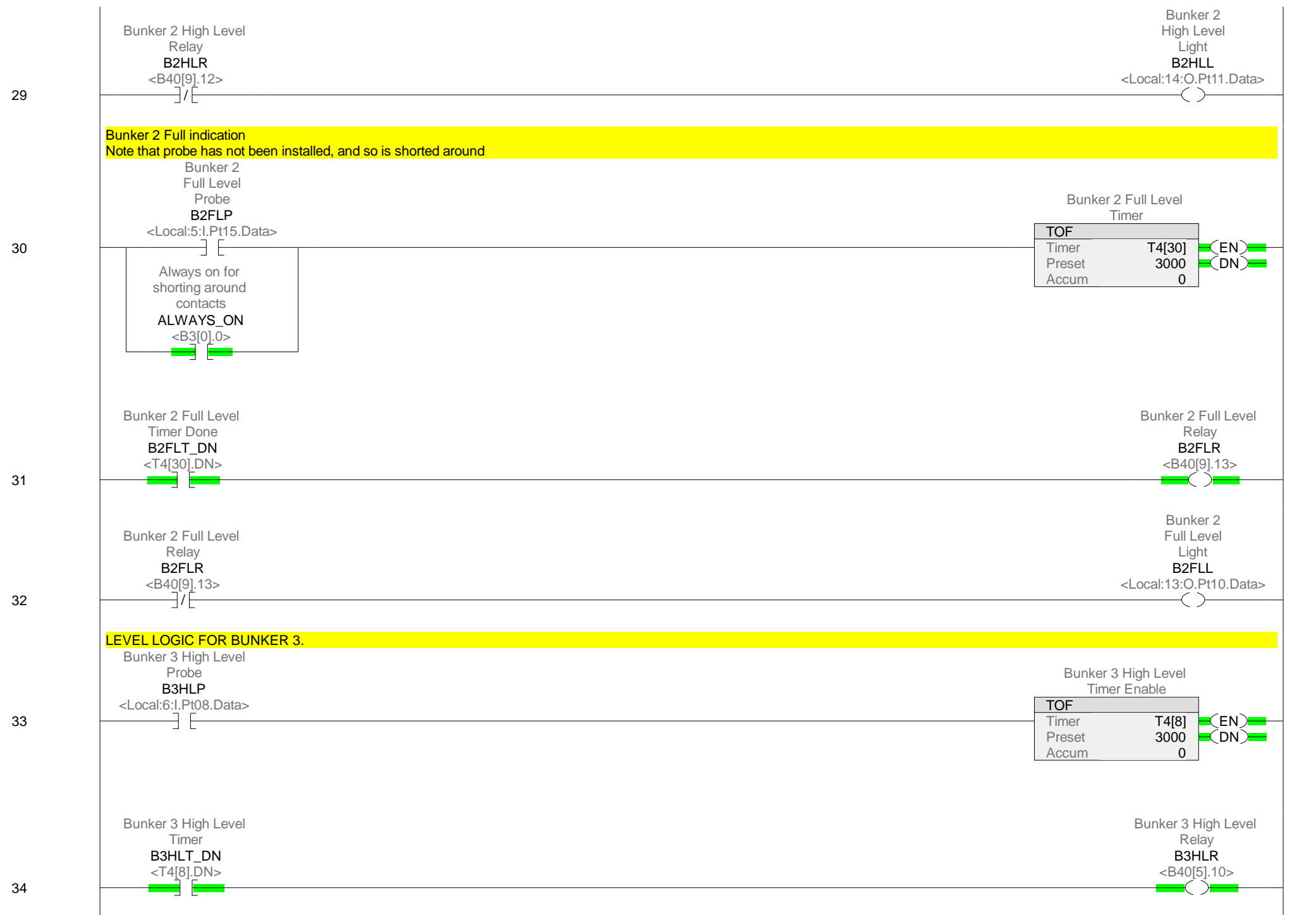


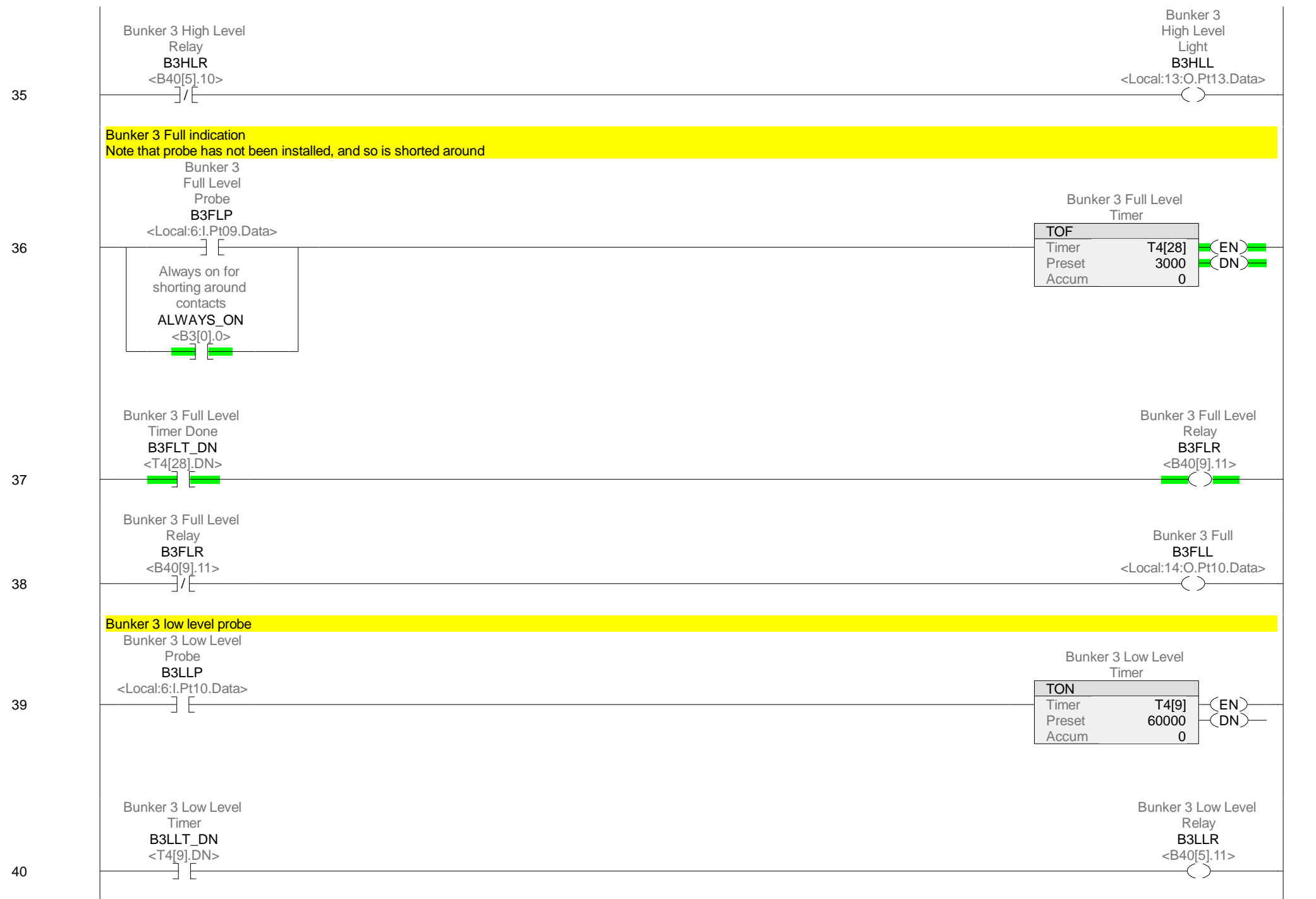


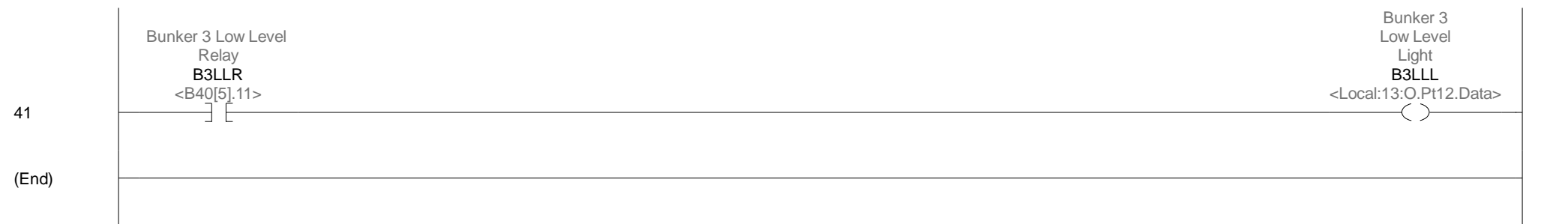












0

System Auto Purge/Stop Control from Operator Panel

System Auto  
Purge/Stop  
SAPS

<Local:1:I.Pt05.Data>

System Purge Switch  
Relay  
SPSR

<B40[8].12>

System Purge Switch  
Relay  
SPSR

<B40[8].12>

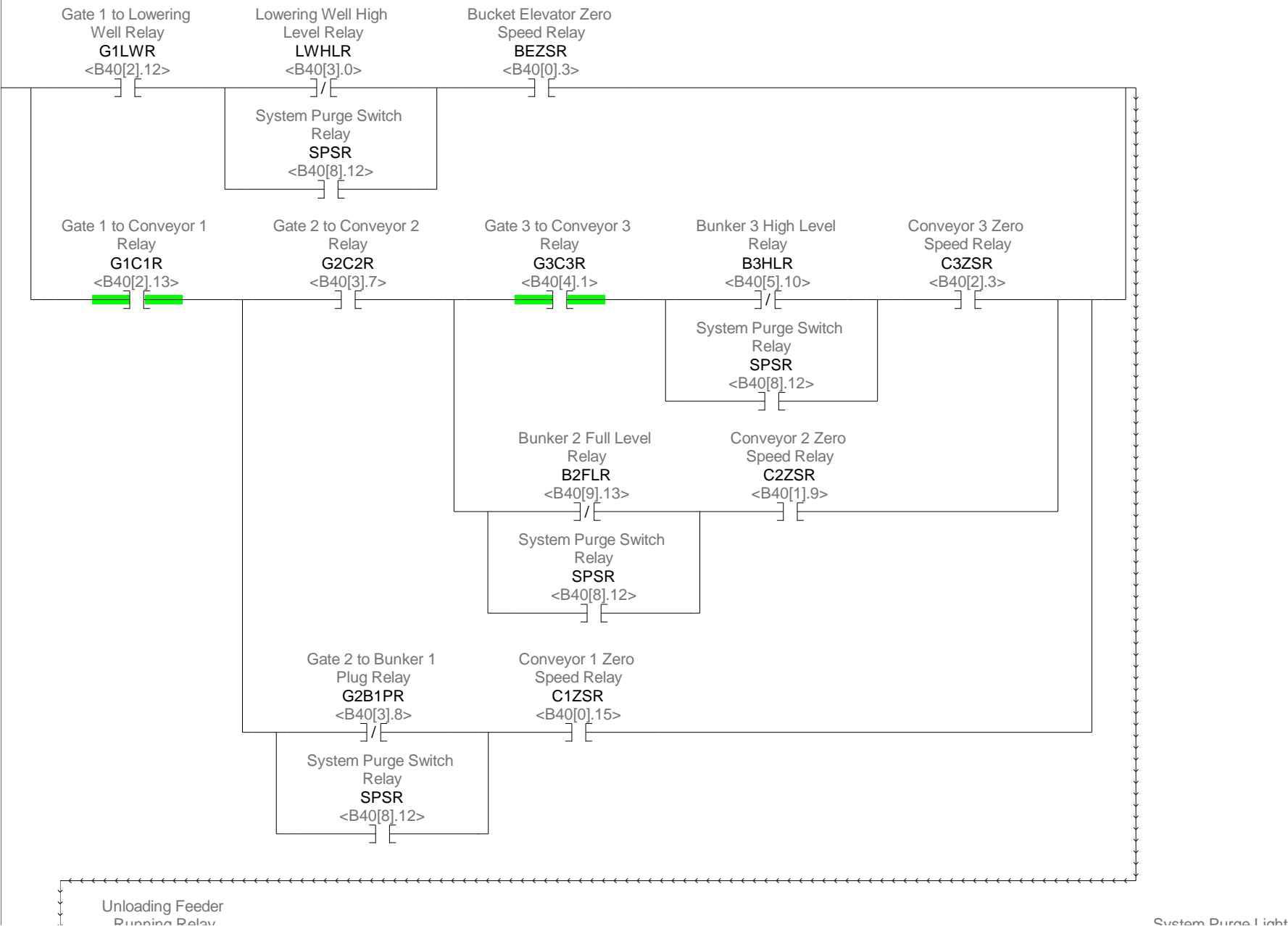
System Purge Relay

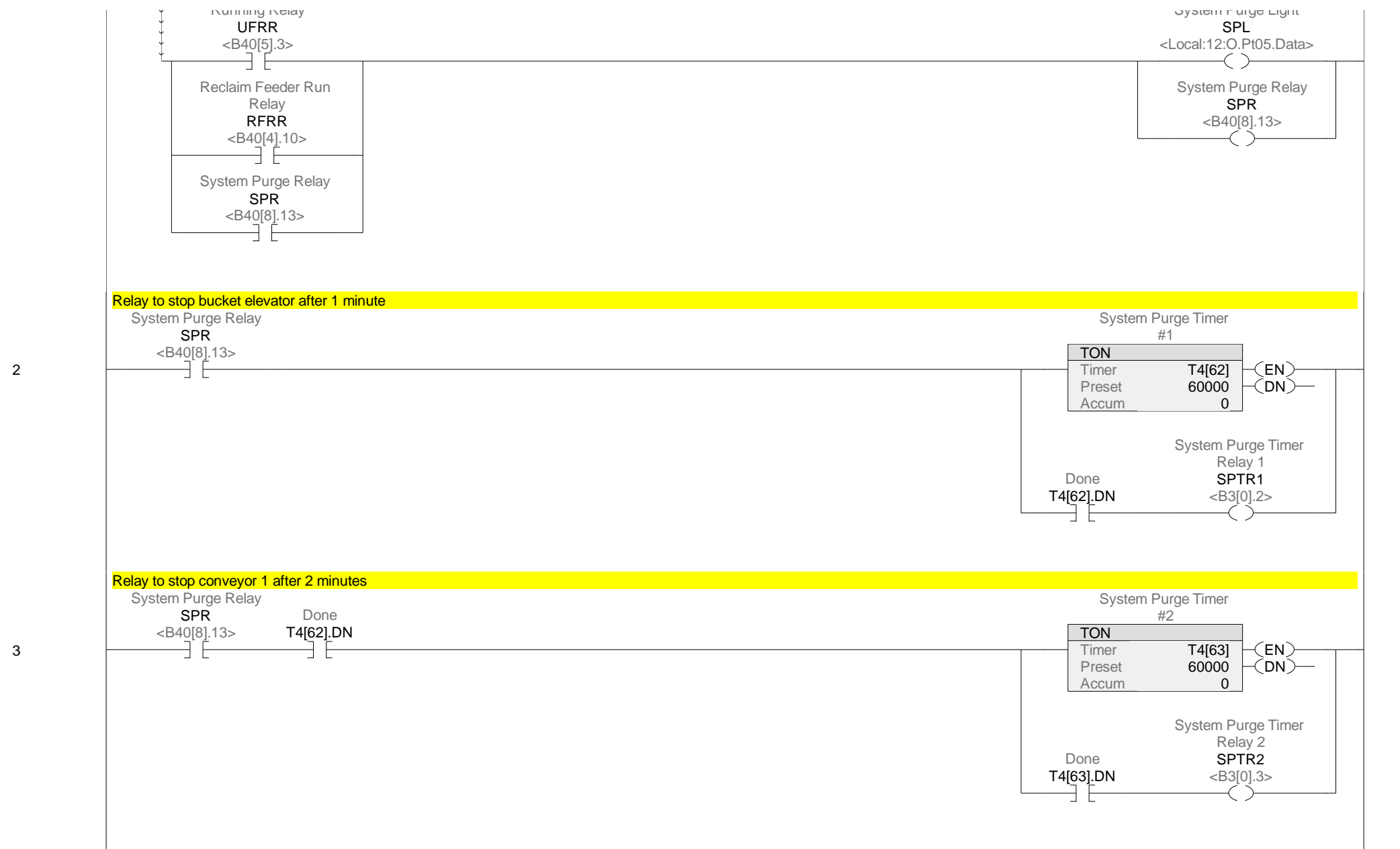
SPR

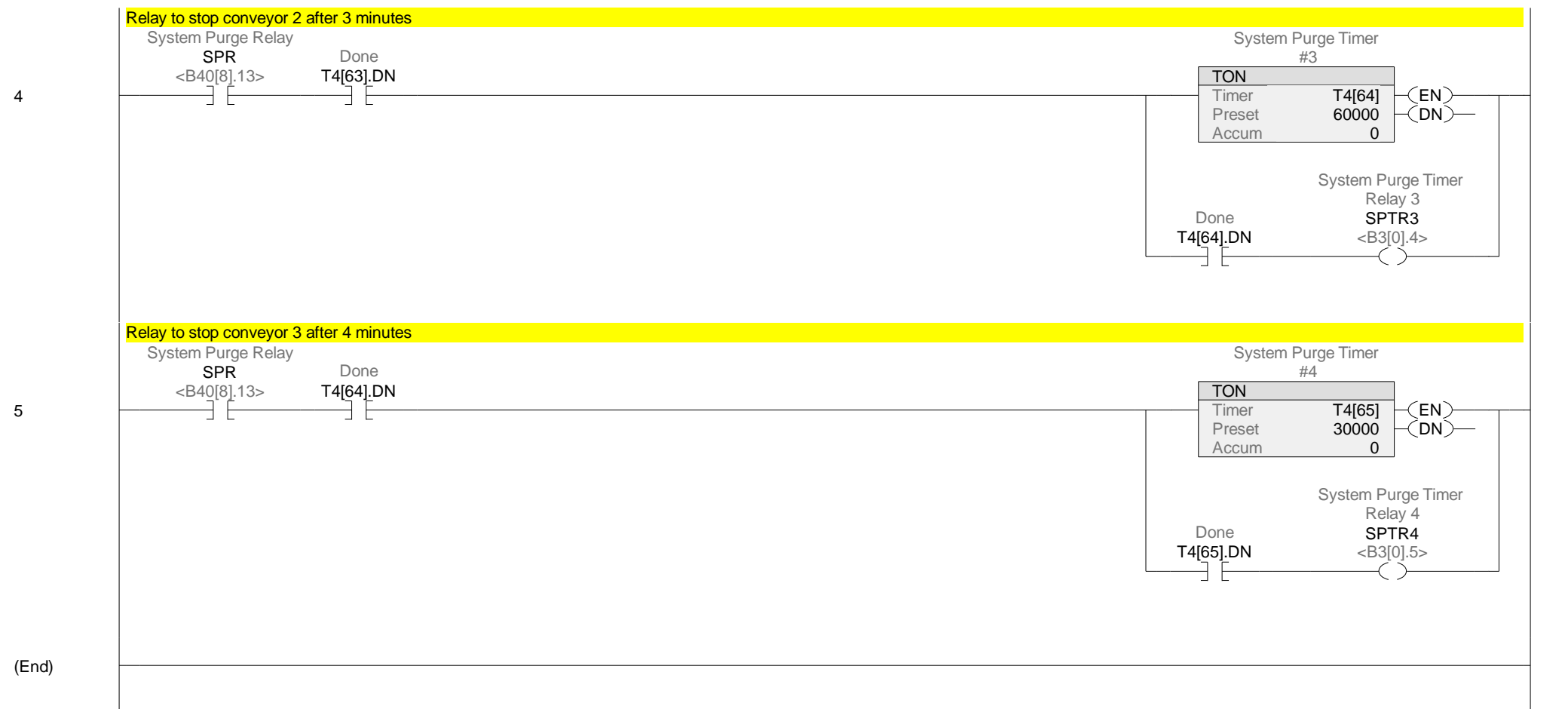
<B40[8].13>

Stop/Purge Logic

\*\*\*\*\*  
\*\* Gate 2 to Bunker 3 Plug switch used as Bunker 1 high \*\*  
\*\* level to initiate purge until high level switch installed \*\*  
\*\*\*\*\*







**Coal\_Handler****MainTask**

<b>MainProgram</b>	
<b>_2_AUT_MAN</b>	
Ladder Diagram .....	1
<b>_35_WW_INDICAT</b>	
Ladder Diagram .....	10
<b>_3_ANNUNCIATE</b>	
Ladder Diagram .....	14
<b>_40_TIEBACK</b>	
Ladder Diagram .....	79
<b>_4_RE_UN_FDR</b>	
Ladder Diagram .....	94
<b>_5_BUCK_ELEV</b>	
Ladder Diagram .....	99
<b>_6_GATE_1_2_3</b>	
Ladder Diagram .....	103
<b>_7_CONV_1_2_3</b>	
Ladder Diagram .....	111
<b>_8_PURGE</b>	
Ladder Diagram .....	124