

POU: PLC_PRG

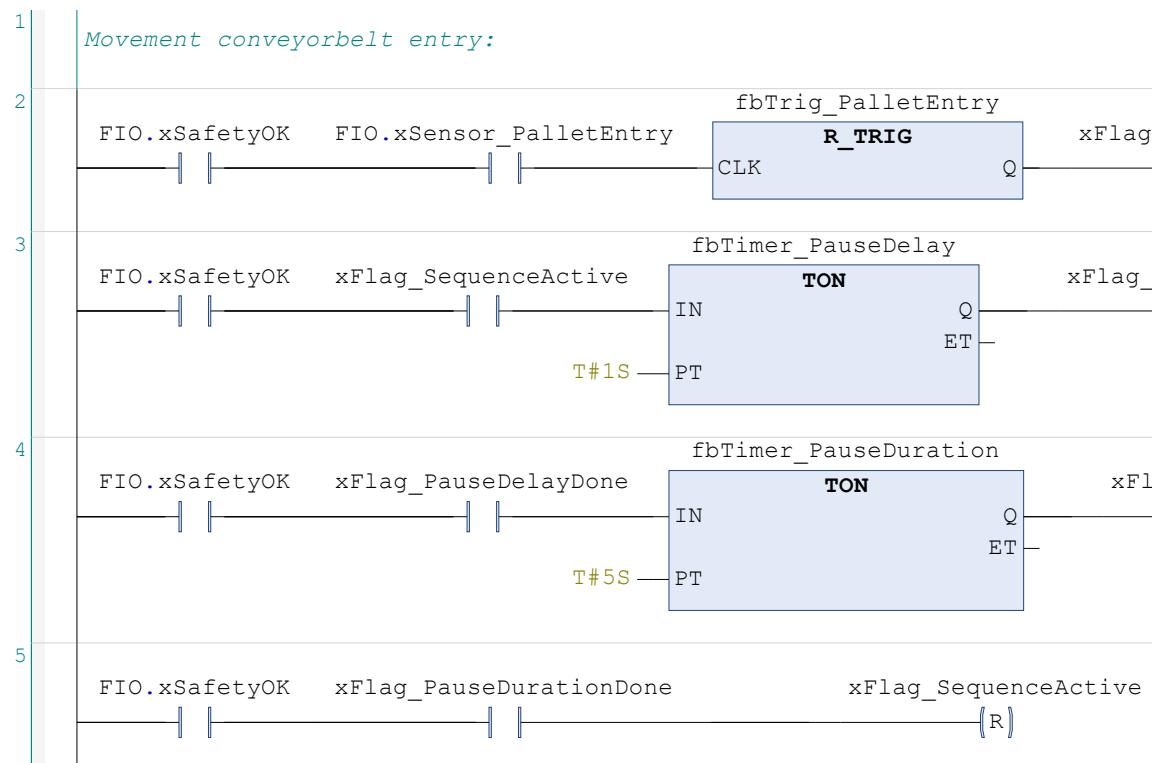
```
1   PROGRAM PLC_PRG
2   VAR
3       // =====
4       // 1. SYSTEM CONTROL & SEQUENCE MANAGEMENT
5       // =====
6       fbSR_SystemOn      : SR;          // Main System ON/OFF Latch (Start/Stop
logic)
7       fbRS_LoadSeq        : RS;          // Loading Sequence Latch (controls the
feed)
8       iAutoStep           : INT := 0;    // Main Step Chain / State Machine
index
9       xFlag_ConveyorAccess : BOOL;       // Flag: Permission to run the main
conveyor
10
11      // =====
12      // 2. PAUSE LOGIC (TIMING & DELAYS)
13      // =====
14      fbTrig_PalletEntry   : R_TRIG;     // Detects new pallet entry (Rising
Edge)
15      fbTimer_StartDelay   : TON;         // Initial start-up delay timer (1s)
16      fbTimer_PauseDelay   : TON;         // Pre-pause delay timer
17      fbTimer_PauseDuration: TON;         // Main pause duration timer (5s
stop)
18
19      // Status Flags
20      xFlag_SequenceActive : BOOL;       // Flag: Sequence is currently
active
21      xFlag_PauseDelayDone : BOOL;       // Flag: Start delay finished
22      xFlag_PauseDurationDone: BOOL;     // Flag: 5s pause finished
23
24      // =====
25      // 3. SORTING LOGIC: BIG BOX (LEFT CONVEYOR)
26      // =====
27      // Detection & Actuation
28      fbTrig_LoadSensor     : R_TRIG;     // Load sensor trigger
29      fbTimer_PushBigBox    : TON;         // Timer for Big Box pusher
extension
30      fbSR_BigBoxActive    : SR;          // Memory latch for Big Box sorting
operation
31
32      // Flags
33      xFlag_BigBoxDetected : BOOL;       // Input: High sensor detected (Big
Box)
34      xFlag_BigBoxActive    : BOOL;       // Output control: Big Box pusher is
active
35      xFlag_BigBoxPath      : BOOL;       // Tracking: Box is on the "Big Box"
path
36      xFlag_ConveyorLeftActive: BOOL;     // Status: Left conveyor is running
37
38      // =====
39      // 4. SORTING LOGIC: SMALL BOX (RIGHT CONVEYOR)
40      // =====
41      // Detection & Actuation
42      fbTrig_SmallBoxEntry  : R_TRIG;     // Small Box entry detection
43      fbTimer_PushSmallBox  : TON;         // Timer for Small Box pusher
extension
44
```

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45      // Flags
46      xFlag_SmallBoxDetected : BOOL;      // Input: Low sensor detected (Small
47      Box)
48      xFlag_SmallBoxActive : BOOL;        // Output control: Small Box pusher
49      is active
50      xFlag_SmallPath : BOOL;            // Tracking: Box is on the "Small
51      Box" path
52      xFlag_ConveyorRightActive : BOOL; // Status: Right conveyor is running
53
54      // =====
55      // 5. COUNTING & EXIT MONITORING
56      // =====
57      // Edge Detections
58      fbTrig_CountLeft : R_TRIG;        // Counting trigger (Left side)
59      fbTrig_CountRight : R_TRIG;       // Counting trigger (Right side)
60      fbFTrig_ExitLeft : F_TRIG;        // Falling edge detection at Left
61      Exit
62      fbFTrig_ExitRight : F_TRIG;       // Falling edge detection at Right
63      Exit
64
65      // Counters & Results
66      fbCounter_TotalBoxes : CTU;        // Main Up-Counter for total boxes
67      xCountPulse : BOOL;              // Combined counting pulse (Left +
68      Right)
69      iCurrentCount : INT;             // Total count value for HMI/Display
70
71      END_VAR

```



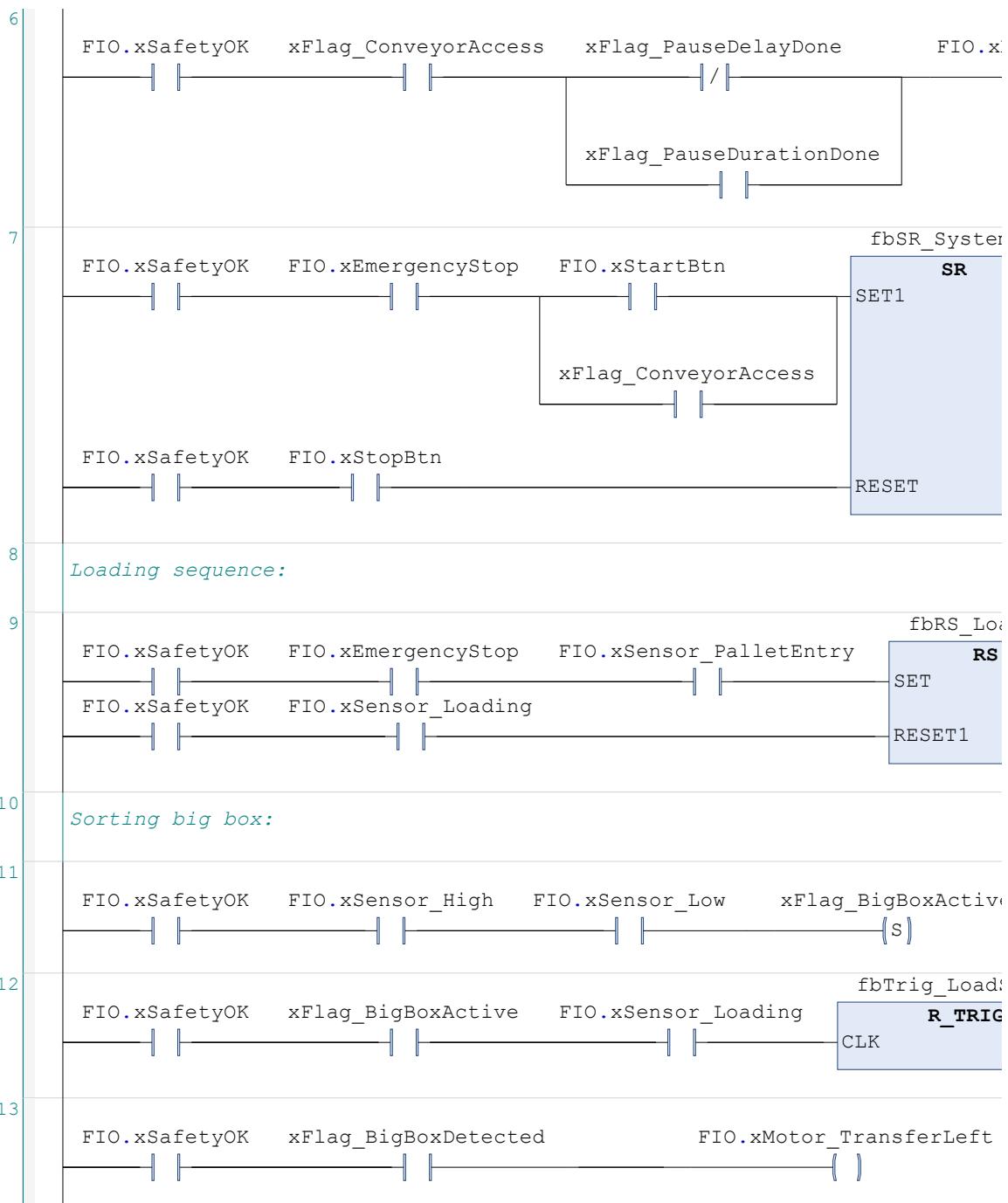
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_SequenceActive
———(S)

.PauseDelayDone
———()

.ag_PauseDurationDone
———()

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Motor_ConveyorEntry



nOn



xFlag_ConveyorAccess

Q1



adSeq



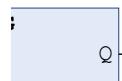
FIO.xMotor_Load

Q1



e

Sensor



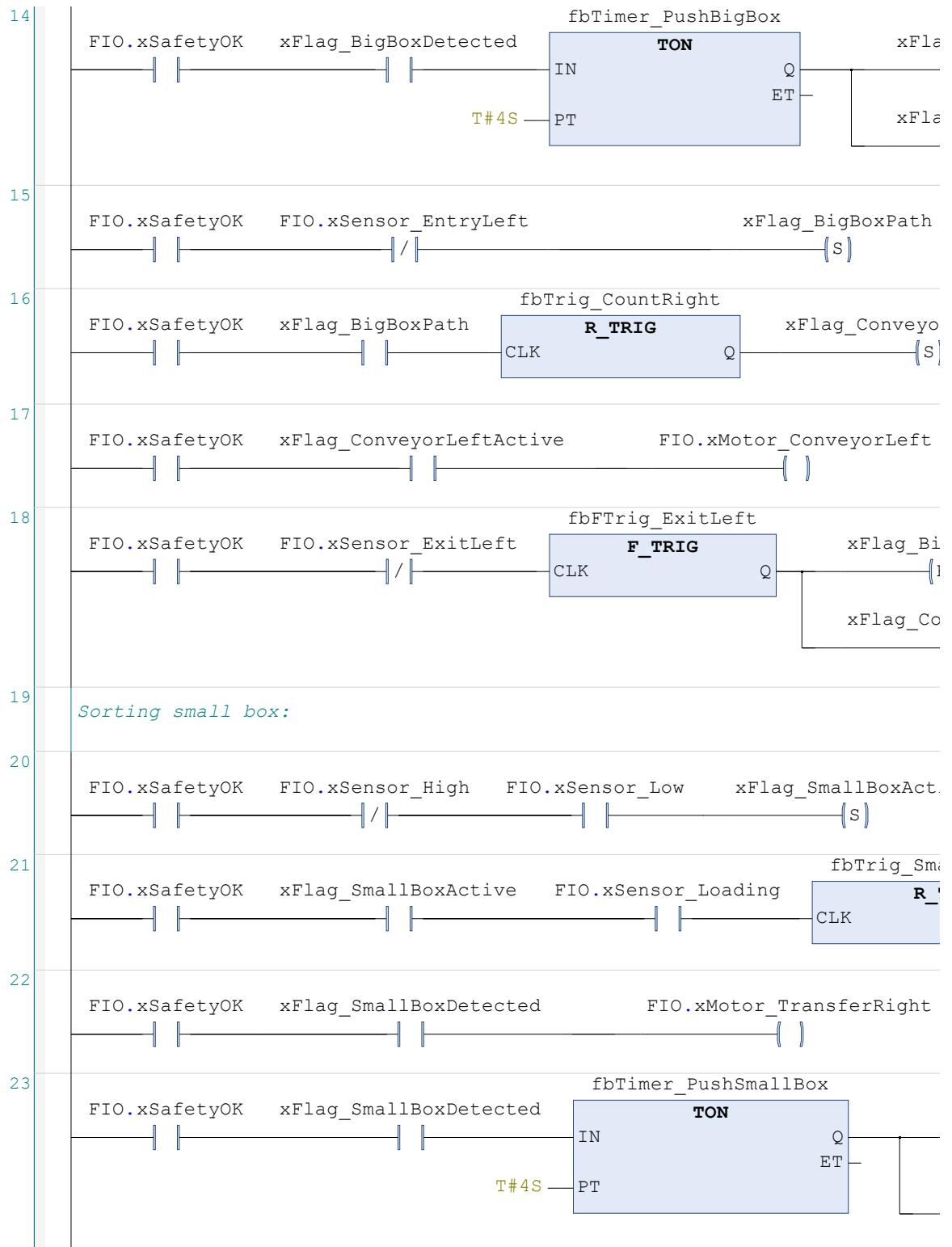
xFlag_BigBoxDetected

Q



(S)

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tg_BigBoxDetected
———(R)

tg_BigBoxActive
———(R)

rLeftActive
|

gBoxPath
R)

conveyorLeftActive
———(R)

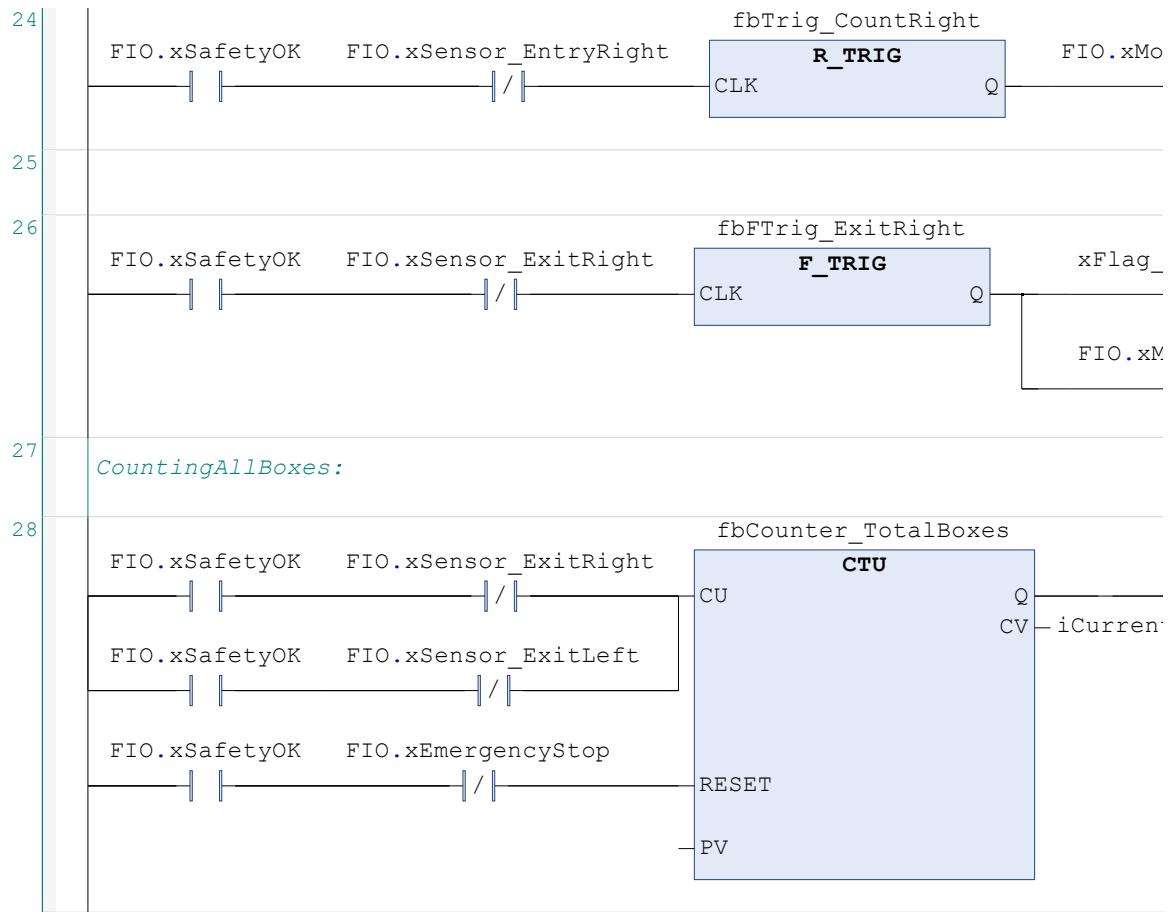
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allBoxEntry
TRIG xFlag_SmallBoxDetected
Q —————(S)

xFlag_SmallBoxDetected
———(R)

xFlag_SmallBoxActive
———(R)

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tor_ConveyorRight
—(S)

.SmallPath
-(R)

lotor_ConveyorRight
—(R)

xCountPulse
—()
tCount
