Things required

Hardware used:

Siemens PLC
S7-1200

IO-Link master
AL1100

SignalLight DV2510
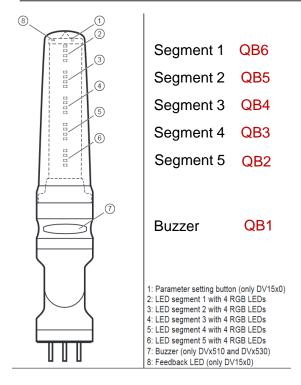
Software used:

Siemens TIA Portal
V13/V14/V15
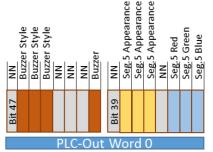
SignalLight LED's status

Segment 1   QB6

Segment 2   QB5

Segment 3   QB4

Segment 4   QB3

Segment 5   QB2

Buzzer   QB1

1: Parameter setting button (only DV15x0)
2: LED segment 1 with 4 RGB LEDs
3: LED segment 2 with 4 RGB LEDs
4: LED segment 3 with 4 RGB LEDs
5: LED segment 4 with 4 RGB LEDs
6: LED segment 5 with 4 RGB LEDs
7: Buzzer (only DVx510 and DVx530)
8: Feedback LED (only DV15x0)

Values

Value	Colour	Appearance	Buzzer style
0	Off	Continuous lighting	No sound
1	Blue	Blink slow	Rapid intermittent beep
2	Green	Blink med.	Rapid Hi Lo
3	Cyan	Blink fast	Sweep sound
4	Red	Flashing slow	Continuous beep sound with cycle ON/OFF
5	Purple	Flashing med	Rapid intermittent beep with cycle ON/OFF
6	Amber	Flashing fast	Rapid Hi Lo with cycle ON/OFF
7	White	Not used	Sweep sound with cycle ON/OFF

PLC-Out Word 0 — Bit 47 ... Bit 39: NN, Buzzer Style, Buzzer Style, Buzzer Style, NN, NN, NN, Buzzer / Seg.5 Appearance, Seg.5 Appearance, Seg.5 Appearance, NN, Seg.5 Red, Seg.5 Green, Seg.5 Blue

PLC-Out Word 2 — Bit 31 ... Bit 23: NN, Seg.4 Appearance, Seg.4 Appearance, Seg.4 Appearance, NN, Seg.4 Red, Seg.4 Green, Seg.4 Blue / Seg.3 Appearance, Seg.3 Appearance, Seg.3 Appearance, NN, Seg.3 Red, Seg.3 Green, Seg.3 Blue

PLC-out Word 4 — Bit 15 ... Bit 7 ... Bit0: NN, Seg.2 Appearance, Seg.2 Appearance, Seg.2 Appearance, NN, Seg.2 Red, Seg.2 Green, Seg.2 Blue / Seg.1 Appearance, Seg.1 Appearance, Seg.1 Appearance, NN, Seg.1 Red, Seg.1 Green, Seg.1 Blue

What we are going to learn in this section:

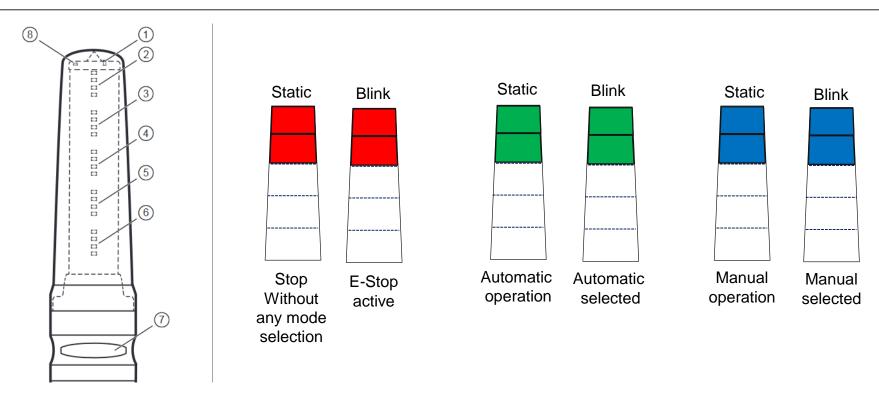## Tasks:

1. Adding IO-Link master AL1100 in the Siemens S7-1200 networks

2. Configuration of the AL1100 ports for SignalLight

3. Assigning the DB for AL1100 to write the SignalLight status

4. Testing read/write operation for SignalLight

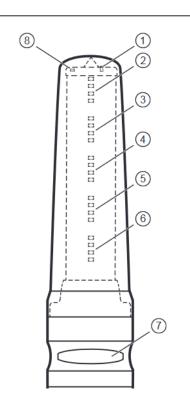5. Writing a PLC algorithm to control the SignalLight w.r.t. Operation modes and error

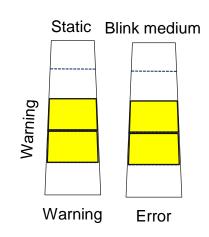# LED status w.r.t. operation modes:

Static — Stop Without any mode selection

Blink — E-Stop active

Static — Automatic operation

Blink — Automatic selected

Static — Manual operation

Blink — Manual selected

LED status w.r.t. operation modes:

Static   Blink medium

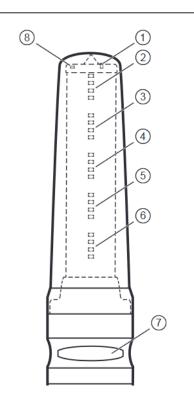Warning

Warning   Error

Yellow Static : Warning

1. Magazine about to get empty
2. Level is decresing towards critical level
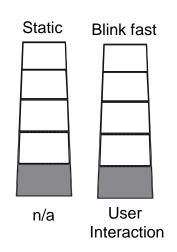
Yellow Blinking: Module failure/Error

1. Tank Empty
2. ASRS Full

LED status w.r.t. operation modes:

Static   Blink fast

n/a   User
            Interaction

Blue Blinking: User Interation required

1. Tuning required (Mechanical) or leakage
2. Parameter needs to be optimized/changed from HMI