LMU02_PLCRev1

******************** first scan ********************

```
        _1st_SCAN
        ⊞ SC2                         Call
1      ──┤ ├──────────────────────────→01_firstScan
```

******************** mud map showing system status ********************

```
       hmiCon       labViewCon      raspPiCon      state_auto      state_srt       state_err                      NOP4
       ⊞ C21         ⊞ C22          ⊞ C23          ⊞ C51          ⊞ C52          ⊞ C60                          ⊞ C604
2     ──┤ ├──────────┤ ├──────────────┤ ├────────────┤ ├────────────┤ ├────────────┤ ├─────────────────────────( OUT )
```

******************** manual state transitions ********************

```
       manual_CMD     state_err      resetDelayT     state_man
       ⊞ C3          ⊞ C60          ⊞ T6           ⊞ C53
3     ──┤ ├──────────┤/├────────────┤/├────────────( OUT )
```

******************** auto state transitions ********************

```
       manual_CMD     state_err      resetDelayT     state_auto
       ⊞ C3          ⊞ C60          ⊞ T6           ⊞ C51
4     ──┤/├──────────┤/├────────────┤/├────────────( OUT )
```

auto state actions

```
       state_auto     autoEnabled     sort_CMD
       ⊞ C51         ⊞ C71          ⊞ C4                Call
5     ──┤ ├──────────┤ ├─────────┬────┤ ├───────────────→02_sort
                                 │
                                 │                      Call
                                 └──────────────────────→03_dispense
```

error

```
       _Always_ON
       ⊞ SC1                          Call
6     ──┤ ├──────────────────────────→04_alarm
```

```
       _Always_ON
       ⊞ SC1                          Call
7     ──┤ ├──────────────────────────→07_modbusClient
```

```
       _Always_ON
       ⊞ SC1                          Call
8     ──┤ ├──────────────────────────→08_arduinoMaster
```

```
       _Always_ON
       ⊞ SC1                          Call
9     ──┤ ├──────────────────────────→09_inputs
```

```
       _Always_ON
       ⊞ SC1                          Call
10    ──┤ ├──────────────────────────→10_outputs
```

```
       _Always_ON
       ⊞ SC1                          Call
11    ──┤ ├──────────────────────────→11_system
```

```
12    ──────────────────────────────( END )
```

LMU02_PLCRev1

```
        _Always_ON          hmiCon
         B SC1               B C21
1       ─┤ ├─              ( SET )

        _Always_ON          state_auto
         B SC1               B C51
2       ─┤ ├─              ( SET )

                            Return
3       ──────────────────────────►
```

sort mode mud map

1
| sort_drop1 | sort_checkColour | sort_colour1 | sort_colour2 | sort_colour3 | sort_colour4 | sort_colourBad | sort_drop2 |
| C121 | C122 | C123 | C124 | C125 | C126 | C127 | C128 | A

A
| sort_noLolly | sort_entryBit | sort_droppedShoot | NOP1 |
| C129 | C130 | C131 | C601 OUT |

********** drop 1 transitions **********
entry state

2
| sort_drop1 | sort_checkColour | sort_noLolly | sort_droppedShoot | sort_drop1 |
| C121 | C122 (/) | C129 (/) | C131 (/) | C121 OUT |

| sort_entryBit |
| C130 |

| sort_drop2 | S52 |
| C128 | C204 |

| sort_noLolly | S41 |
| C129 | C201 |

| sort_droppedShoot | sort_blockedShootTON2 |
| C131 | T123 |

drop 1 actions - 1200ms

3
| sort_drop1 | auto_V4 |
| C121 | C35 OUT |

Timer(ON Delay)	T121	sort_newLollyTON
Current Value	Not Retained	T121
Unit	ms	Output
Enable **SetPoint**	1600	
Current	TD121	

********** check colour transition **********

4
| sort_checkColour | sort_colour1 | sort_colour2 | sort_colour3 | sort_colour4 | sort_colourBad | sort_droppedShoot |
| C122 | C123 (/) | C124 (/) | C125 (/) | C126 (/) | C127 (/) | C131 (/) | B

| sort_drop1 | P1 | sort_newLollyTON |
| C121 | C221 (/) | T121 |

B
| sort_checkColour |
| C122 OUT |

check colour actions

5
| sort_checkColour | NOP2 |
| C122 | C602 OUT |

********** colour 1 transitions **********

6
| sort_colour1 | sort_drop2 | sort_droppedShoot | sort_colour1 |
| C123 | C128 (/) | C131 (/) | C123 OUT |

| sort_checkColour | C1 |
| C122 | C232 |

colour 1 actions

```
7   sort_colour1                                auto_V0
    ⊞ C123                                      ⊞ C31
    ──┤ ├──────┬─────────────────────────────( RST )

                                               auto_V1
                                               ⊞ C32
            ├─────────────────────────────( RST )

                                               auto_V2
                                               ⊞ C33
            ├─────────────────────────────( RST )

                                               auto_V3
                                               ⊞ C34
            └─────────────────────────────( RST )
```

********** colour 2 transitions **********

```
8   sort_colour2   sort_drop2   sort_droppedShoot                    sort_colour2
    ⊞ C124         ⊞ C128       ⊞ C131                               ⊞ C124
    ──┤ ├──────────┤/├──────────┤/├──────┬──────────────────────( OUT )

    sort_checkColour   C2                │
    ⊞ C122             ⊞ C233            │
    ──┤ ├──────────────┤ ├──────────────┘
```

colour 2 actions

```
9   sort_colour2                                auto_V0
    ⊞ C124                                      ⊞ C31
    ──┤ ├──────┬─────────────────────────────( RST )

                                               auto_V1
                                               ⊞ C32
            ├─────────────────────────────( RST )

                                               auto_V2
                                               ⊞ C33
            ├─────────────────────────────( RST )

                                               auto_V3
                                               ⊞ C34
            └─────────────────────────────( SET )
```

********** colour 3 transitions **********

```
10  sort_colour3   sort_drop2   sort_droppedShoot                    sort_colour3
    ⊞ C125         ⊞ C128       ⊞ C131                               ⊞ C125
    ──┤ ├──────────┤/├──────────┤/├──────┬──────────────────────( OUT )

    sort_checkColour   C3                │
    ⊞ C122             ⊞ C234            │
    ──┤ ├──────────────┤ ├──────────────┘
```

colour 3 actions

```
11  sort_colour3                                auto_V0
    ⊞ C125                                      ⊞ C31
    ──┤ ├──────┬─────────────────────────────( RST )

                                               auto_V1
                                               ⊞ C32
            ├─────────────────────────────( SET )

                                               auto_V2
                                               ⊞ C33
            ├─────────────────────────────( RST )

                                               auto_V3
                                               ⊞ C34
            └─────────────────────────────( RST )
```

********** colour 4 transitions **********

```
12  sort_colour4   sort_drop2   sort_droppedShoot                    sort_colour4
    ⊞ C126         ⊞ C128       ⊞ C131                               ⊞ C126
    ──┤ ├──────────┤/├──────────┤/├──────┬──────────────────────( OUT )

    sort_checkColour   C4                │
    ⊞ C122             ⊞ C235            │
    ──┤ ├──────────────┤ ├──────────────┘
```

colour 4 actions

```
        sort_colour4                                          auto_V0
          C126                                                 C31
13      --| |----+------------------------------------------( RST )

                                                              auto_V1
                                                               C32
                 +------------------------------------------( SET )

                                                              auto_V2
                                                               C33
                 +------------------------------------------( SET )

                                                              auto_V3
                                                               C34
                 +------------------------------------------( RST )
```

********** bad colour transitions **********

```
       sort_colourBad    sort_drop2    sort_droppedShoot                                    sort_colourBad
          C127             C128             C131                                               C127
14      --| |----------|/|-------------|/|-----------------+-----------------------------( OUT )

       sort_checkColour    C1             C2            C3            C4
          C122            C232           C233          C234          C235
        --| |----+------|/|------------|/|----------|/|----------|/|-----+

                         C1             C2
                        C232           C233
                 +------| |------------| |----------+

                         C1             C3
                        C232           C234
                 +------| |------------| |----------+

                         C1             C4
                        C232           C235
                 +------| |------------| |----------+

                         C2             C3
                        C233           C234
                 +------| |------------| |----------+

                         C2             C4
                        C233           C235
                 +------| |------------| |----------+

                         C3             C4
                        C234           C235
                 +------| |------------| |----------+
```

bad colour actions

```
       sort_colourBad    auto_V0
          C127             C31
15      --| |------------( SET )
```

********** drop 2 transitions **********

```
        sort_drop2     sort_drop1    sort_droppedShoot                                       sort_drop2
          C128           C121            C131                                                  C128
16      --| |---------|/|-----------|/|--------------------+-----------------------------( OUT )

       sort_colour1     S01            S11           S21           S31
          C123          C205          C211          C213          C215
        --| |----------| |------------| |----------| |----------| |------+

       sort_colour2     S01            S11           S21           S32
          C124          C205          C211          C213          C216
        --| |----------| |------------| |----------| |----------| |------+

       sort_colour3     S01            S12           S21           S31
          C125          C205          C212          C213          C215
        --| |----------| |------------| |----------| |----------| |------+

       sort_colour4     S01            S12           S22           S31
          C126          C205          C212          C214          C215
        --| |----------| |------------| |----------| |----------| |------+

       sort_colourBad   S02
          C127          C206
        --| |----------| |------+
```

drop 2 actions

```
        sort_drop2     auto_V5
          C128           C36
17      --| |----------( OUT )
```

********** no lolly transitions **********

```
       sort_noLolly    sort_drop1    sort_droppedShoot                                      sort_noLolly
          C129           C121            C131                                                  C129
18      --| |---------|/|-----------|/|--------------------+-----------------------------( OUT )

       sort_drop1        P1        sort_newLollyTON
          C121           C221           T121
        --| |----------| |------------| |------+
```

no lolly actions

```
      sort_noLolly                          NOP3
       █ C129                              █ C603
19  ───┤ ├────────────────────────────────( OUT )───
```

if P1 is on for longer than 'x' seconds then the shoot must be blocked
the blocked shoot state will become active regardless as to which state the machine is in

```
         P1          Timer(ON Delay)        T122    sort_blockedShootTO
       █ C221        Current Value     Not Retained        N1
20  ───┤/├──────     Unit                     ms    █ T122
                                                    (   )
              Enable SetPoint          █ 3000    Output

                     Current           █ TD122
```

******************** blocked shoot tranistion ********************

```
    sort_droppedShoot   sort_drop1                        sort_droppedShoot
       █ C131           █ C121                                 █ C131
21  ───┤ ├───────────────┤/├──────┬─────────────────────────( OUT )───
    sort_blockedShootT              │
          ON1                       │
       █ T122                       │
    ───┤ ├───────────────────────────┘
```

******************** blocked shoot actions ********************

```
    sort_droppedShoot                               auto_V0
       █ C131                                         █ C31
22  ───┤ ├──────────┬──────────────────────────────( SET )───
                     │   2SecTimer_1                 auto_V5
                     │      █ T4                       █ C36
                     ├──────┤ ├─────────────────────( SET )───
                     │   2SecTimer_1                 auto_V12
                     │      █ T4                       █ C43
                     ├──────┤/├─────────────────────( OUT )───
                     │             Timer(ON Delay)      T123    sort_blockedShootTO
                     │     P1      Current Value   Not Retained        N2
                     │   █ C221    Unit                   ms    █ T123
                     └───┤ ├──────                              (   )
                                Enable SetPoint       █ 2000  Output

                                     Current          █ TD123
```

if not in any state then go into "entryBit" state

```
    sort_drop1  sort_checkColour  sort_colour1  sort_colour2  sort_colour3  sort_colour4  sort_colourBad  sort_drop2
     █ C121        █ C122           █ C123        █ C124        █ C125        █ C126         █ C127         █ C128
23 ──┤/├──────────┤/├──────────────┤/├───────────┤/├───────────┤/├───────────┤/├────────────┤/├────────────┤/├────── C
```

```
    sort_noLolly   sort_droppedShoot          sort_entryBit
      █ C129          █ C131                     █ C130
 C ────┤/├─────────────┤/├─────────────────────( OUT )───
```

```
24  ─────────────────Return────────>
```

When get is pressed, move all dispensing actuators

1

| get_CMD | disp_memBit1 | col1_CMD | auto_V9 |
| C16 | C171 | C12 | C40 SET |

| | | col2_CMD | auto_V8 |
| | | C13 | C39 SET |

| | | col3_CMD | auto_V7 |
| | | C14 | C38 SET |

| | | col4_CMD | auto_V6 |
| | | C15 | C37 SET |

| | | | disp_memBit1 |
| | | | C171 SET |

retract V9

2

| S92 | auto_V9 |
| C220 | C40 RST |

retract V8

3

| S82 | auto_V8 |
| C218 | C39 RST |

retract V7

4

| S72 | auto_V7 |
| C210 | C38 RST |

retract V6

5

| S62 | auto_V6 |
| C208 | C37 RST |

start V5 timer when conditions are met

6

| disp_memBit1 | S91 | S81 | S71 | S61 | disp_memBit2 |
| C171 | C219 | C217 | C209 | C207 | C172 OUT |

turn on V10 after timer has been running for 1 second

7

| TD1 | 1000 | TD1 | 1500 | auto_V10 |
| > | | < | | C41 SET |

start timer

8

| disp_memBit2 | | |
| C172 | | |

```
Timer(ON Delay)          T1
Current Value    Not Retained        T1
Unit                    ms
               Output
Enable SetPoint      3000

Current          TD1
```

re-initialise system variables

9

| T1 | auto_V10 |
| ↑ | C41 RST |

| | col1_CMD col4_CMD |
| | C12   C15 RST |

| | disp_memBit1 |
| | C171 RST |

10   Return

reset alarms

1

reset_CMD
C10

Copy	Single
Src	0
	alarmCode1
Des	DS1

Copy	Single
Src	0
	alarmCode2
Des	DS2

Timer(OFF Delay)	T6
Current Value	Not Retained
Unit	ms
Enable SetPoint	2000
Current	TD6

resetDelayT
T6
Output

V0 fail to open

2

V0   S02
C225   C206

Timer(ON Delay)	T61
Current Value	Not Retained
Unit	ms
Enable SetPoint	2000
Current	TD61

V0_fto
T61
Output

3

V0_fto   reset_CMD   err_V0_fto
T61   C10   C81
                             (OUT)

err_V0_fto
C81

4

err_V0_fto
C81
↑

Math
DS1 + 1

alarmCode1
[DS1]
Result

V0 fail to close

5

V0   S01
C225   C205

Timer(ON Delay)	T62
Current Value	Not Retained
Unit	ms
Enable SetPoint	2000
Current	TD62

V0_ftc
T62
Output

6

V0_ftc   reset_CMD   err_V0_ftc
T62   C10   C82
                             (OUT)

err_V0_ftc
C82

7

err_V0_ftc
C82
↑

Math
DS1 + 2

alarmCode1
[DS1]
Result

V1 fail to open

8

V1   S12
C226   C212

Timer(ON Delay)	T63
Current Value	Not Retained
Unit	ms
Enable SetPoint	2000
Current	TD63

V1_fto
T63
Output

9

V1_fto   reset_CMD   err_V1_fto
T63   C10   C83
                             (OUT)

err_V1_fto
C83

10

err_V1_fto
⊞ C83
─┤↑├─

Math
DS1 + 4

alarmCode1
⊞ DS1
─┤ ┤─
Result

V1 fail to close

11

V1
⊞ C226
─┤/├─

S11
⊞ C211
─┤/├─
Enable

Timer(ON Delay)   T64
Current Value   Not Retained
Unit   ms
SetPoint   ⊞ 2000

Current   ⊞ TD64

V1_ftc
⊞ T64
( )
Output

12

V1_ftc
⊞ T64
─┤ ├─

reset_CMD
⊞ C10
─┤/├─

err_V1_ftc
⊞ C84
(OUT)

err_V1_ftc
⊞ C84
─┤ ├─

13

err_V1_ftc
⊞ C84
─┤↑├─

Math
DS1 + 8

alarmCode1
⊞ DS1
─┤ ┤─
Result

V2 fail to open

14

V2
⊞ C227
─┤ ├─

S22
⊞ C214
─┤/├─
Enable

Timer(ON Delay)   T65
Current Value   Not Retained
Unit   ms
SetPoint   ⊞ 2000

Current   ⊞ TD65

V2_fto
⊞ T65
( )
Output

15

V2_fto
⊞ T65
─┤ ├─

reset_CMD
⊞ C10
─┤/├─

err_V2_fto
⊞ C85
(OUT)

err_V2_fto
⊞ C85
─┤ ├─

16

err_V2_fto
⊞ C85
─┤↑├─

Math
DS1 + 16

alarmCode1
⊞ DS1
─┤ ┤─
Result

V2 fail to close

17

V2
⊞ C227
─┤/├─

S21
⊞ C213
─┤/├─
Enable

Timer(ON Delay)   T66
Current Value   Not Retained
Unit   ms
SetPoint   ⊞ 2000

Current   ⊞ TD66

V2_ftc
⊞ T66
( )
Output

18

V2_ftc
⊞ T66
─┤ ├─

reset_CMD
⊞ C10
─┤/├─

err_V2_ftc
⊞ C86
(OUT)

err_V2_ftc
⊞ C86
─┤ ├─

19

err_V2_ftc
⊞ C86
─┤↑├─

Math
DS1 + 32

alarmCode1
⊞ DS1
─┤ ┤─
Result

V3 fail to open

20

V3
⊞ C228
─┤ ├─

S32
⊞ C216
─┤/├─
Enable

Timer(ON Delay)   T67
Current Value   Not Retained
Unit   ms
SetPoint   ⊞ 2000

Current   ⊞ TD67

V3_fto
⊞ T67
( )
Output

21
V3_fto	reset_CMD	err_V3_fto
T67	C10	C87
—| |—	—|/|—	(OUT)

err_V3_fto
C87

22
err_V3_fto	Math	alarmCode1
C87	DS1 + 64	DS1
—|↑|—		Result

V3 fail to close

23
V3	S31	Timer(ON Delay) T68	V3_ftc
C228	C215	Current Value Not Retained	T68
—|/|—	—|/|—	Unit ms	(Output)
	Enable	SetPoint 2000	
		Current TD68	

24
V3_ftc	reset_CMD	err_V3_ftc
T68	C10	C88
—| |—	—|/|—	(OUT)

err_V3_ftc
C88

25
err_V3_ftc	Math	alarmCode1
C88	DS1 + 128	DS1
—|↑|—		Result

V4 fail to open

26
V4	S42	Timer(ON Delay) T69	V4_fto
C229	C202	Current Value Not Retained	T69
—| |—	—|/|—	Unit ms	(Output)
	Enable	SetPoint 2000	
		Current TD69	

27
V4_fto	reset_CMD	err_V4_fto
T69	C10	C89
—| |—	—|/|—	(OUT)

err_V4_fto
C89

28
err_V4_fto	Math	alarmCode1
C89	DS1 + 256	DS1
—|↑|—		Result

V4 fail to close

29
V4	S41	Timer(ON Delay) T70	V4_ftc
C229	C201	Current Value Not Retained	T70
—|/|—	—|/|—	Unit ms	(Output)
	Enable	SetPoint 2000	
		Current TD70	

30
V4_ftc	reset_CMD	err_V4_ftc
T70	C10	C90
—| |—	—|/|—	(OUT)

err_V4_ftc
C90

31
err_V4_ftc	Math	alarmCode1
C90	DS1 + 512	DS1
—|↑|—		Result

V5 fail to open

32

V5	S52	Timer(ON Delay)	T71	V5_fto
C230	C204	Current Value	Not Retained	T71
		Unit	ms	Output
	Enable	SetPoint	2000	
		Current	TD71	

33

V5_fto	reset_CMD	err_V5_fto
T71	C10	C91
		OUT

err_V5_fto
C91

34

err_V5_fto	Math	alarmCode1
C91	DS1 + 1024	DS1
	Result	

V5 fail to close

35

V5	S51	Timer(ON Delay)	T72	V5_ftc
C230	C203	Current Value	Not Retained	T72
		Unit	ms	Output
	Enable	SetPoint	2000	
		Current	TD72	

36

V5_ftc	reset_CMD	err_V5_ftc
T72	C10	C92
		OUT

err_V5_ftc
C92

37

err_V5_ftc	Math	alarmCode1
C92	DS1 + 2048	DS1
	Result	

V6 fail to open

38

V6	S62	Timer(ON Delay)	T73	V6_fto
C231	C208	Current Value	Not Retained	T73
		Unit	ms	Output
	Enable	SetPoint	2000	
		Current	TD73	

39

V6_fto	reset_CMD	err_V6_fto
T73	C10	C93
		OUT

err_V6_fto
C93

40

err_V6_fto	Math	alarmCode1
C93	DS1 + 4096	DS1
	Result	

V6 fail to close

41

V6	S61	Timer(ON Delay)	T74	V6_ftc
C231	C207	Current Value	Not Retained	T74
		Unit	ms	Output
	Enable	SetPoint	2000	
		Current	TD74	

42

V6_ftc	reset_CMD	err_V6_ftc
T74	C10	C94
		OUT

err_V6_ftc
C94

43

err_V6_ftc
C94
↑

Math
DS1 + 8192
Result

alarmCode1
[DS1]

V7 fail to open

44

V7
C240

S72
C210

Timer(ON Delay)   T75
Current Value   Not Retained
Unit   ms
Enable SetPoint   2000

Current   TD75

V7_fto
T75
Output

45

V7_fto
T75

reset_CMD
C10

err_V7_fto
C95
(OUT)

err_V7_fto
C95

46

err_V7_fto
C95
↑

Math
DS1 + 16384
Result

alarmCode1
[DS1]

V7 fail to close

47

V7
C240

S71
C209

Timer(ON Delay)   T76
Current Value   Not Retained
Unit   ms
Enable SetPoint   2000

Current   TD76

V7_ftc
T76
Output

48

V7_ftc
T76

reset_CMD
C10

err_V7_ftc
C96
(OUT)

err_V7_ftc
C96

49

err_V7_ftc
C96
↑

Math
DS1 + 32768
Result

alarmCode1
[DS1]

V8 fail to open

50

V8
C241

S82
C218

Timer(ON Delay)   T77
Current Value   Not Retained
Unit   ms
Enable SetPoint   2000

Current   TD77

V8_fto
T77
Output

51

V8_fto
T77

reset_CMD
C10

err_V8_fto
C97
(OUT)

err_V8_fto
C97

52

err_V8_fto
C97
↑

Math
DS2 + 1
Result

alarmCode2
[DS2]

V8 fail to close

53

V8
C241

S81
C217

Timer(ON Delay)   T78
Current Value   Not Retained
Unit   ms
Enable SetPoint   2000

Current   TD78

V8_ftc
T78
Output

54
```
    V8_ftc          reset_CMD              err_V8_ftc
   ⊞ T78            ⊞ C10                  ⊞ C98
────┤ ├──────────────┤/├────────────────────( OUT )────

   err_V8_ftc
   ⊞ C98
────┤ ├──────────
```

55
```
   err_V8_ftc    ┌─────────────┐          alarmCode2
   ⊞ C98         │ Math        │          ⊞ DS2
────┤↑├──────────│ DS2 + 2     │──────────[    ]──────
                 │         Result│
                 └─────────────┘
```

V9 fail to open

56
```
     V9            S92         ┌──────────────────────────┐      V9_fto
   ⊞ C242        ⊞ C220        │ Timer(ON Delay)      T79  │     ⊞ T79
────┤ ├────────────┤/├─────────│ Current Value   Not Retained│───( )────
                          Enable│ Unit              ms  Output│
                               │ SetPoint     ⊞ 2000         │
                               │ Current      ⊞ TD79         │
                               └──────────────────────────┘
```

57
```
    V9_fto         reset_CMD              err_V9_fto
   ⊞ T79           ⊞ C10                  ⊞ C99
────┤ ├──────────────┤/├────────────────────( OUT )────

   err_V9_fto
   ⊞ C99
────┤ ├──────────
```

58
```
   err_V9_fto    ┌─────────────┐          alarmCode2
   ⊞ C99         │ Math        │          ⊞ DS2
────┤↑├──────────│ DS2 + 4     │──────────[    ]──────
                 │         Result│
                 └─────────────┘
```

V9 fail to close

59
```
     V9            S91         ┌──────────────────────────┐      V9_ftc
   ⊞ C242        ⊞ C219        │ Timer(ON Delay)      T80  │     ⊞ T80
────┤/├────────────┤/├─────────│ Current Value   Not Retained│───( )────
                          Enable│ Unit              ms  Output│
                               │ SetPoint     ⊞ 2000         │
                               │ Current      ⊞ TD80         │
                               └──────────────────────────┘
```

60
```
    V9_ftc         reset_CMD              err_V9_ftc
   ⊞ T80           ⊞ C10                  ⊞ C100
────┤ ├──────────────┤/├────────────────────( OUT )────

   err_V9_ftc
   ⊞ C100
────┤ ├──────────
```

61
```
   err_V9_ftc    ┌─────────────┐          alarmCode2
   ⊞ C100        │ Math        │          ⊞ DS2
────┤↑├──────────│ DS2 + 8     │──────────[    ]──────
                 │         Result│
                 └─────────────┘
```

62
```
    eStop                              ┌─────────────┐          alarmCode2
   ⊞ X001                              │ Math        │          ⊞ DS2
────┤↓├──────────────────────────────┬─│ DS2 + 16    │──────────[    ]──────
                                     │ │         Result│
    eStop          state_auto        │ └─────────────┘
   ⊞ X001          ⊞ C51             │
────┤/├──────────────┤↑├─────────────┤
                                     │
                    state_man        │
                    ⊞ C53            │
                  ────┤↑├────────────┘
```

An alarm is active if either of the alarm codes is not equal to zero or if the E-Stop is pressed.

63
```
   alarmCode1                              state_err
   ⊞ DS1        ⊞ 0                        ⊞ C60
────┤≠├────────────────────────────────────( OUT )────

   alarmCode2
   ⊞ DS2        ⊞ 0
────┤≠├──────────
```

64
```
   hmiDiscon      labViewDiscon   nodRedDiscon     clientConnection Error
   ⊞ C24          ⊞ C25           ⊞ C26            ⊞ C101
────┤ ├────────────┤ ├─────────────┤ ├──────────────( OUT )────
```

65
```
                        Return
────────────────────────────────────>
```

1

modClinetSeq
CTD20 ⬛ 0
—|=|—

Receive (CPU Port:1)	MODBUS
IPAddress	192.168.1.20
ServerPortNo	502
Slave ID	0
Modbus Function Code	01
Slave Addr	1
NO. of Bits	16
	S41
Master	C201

modDaq1_recv
C501 —○
Receiving
modDaq1_recvSucc
C502 —○
Success
modDaq1_recvErr
C503 —○
Error

2

modClinetSeq
CTD20 ⬛ 1
—|=|—

Receive (CPU Port:1)	MODBUS
IPAddress	192.168.1.21
ServerPortNo	502
Slave ID	0
Modbus Function Code	01
Slave Addr	1
NO. of Bits	8
	S81
Master	C217

modDaq2_recv
C504 —○
Receiving
modDaq2_recvSucc
C505 —○
Success
modDaq2_recvErr
C506 —○
Error

3

modClinetSeq
CTD20 ⬛ 2
—|=|—

Send (CPU Port:1)	MODBUS
IPAddress	192.168.1.21
ServerPortNo	502
Slave ID	0(Broadcast)
Modbus Function Code	15
Slave Addr	17
NO. of Bits	7
	V0
Master	C225

modDaq2_send
C507 —○
Sending
modDaq2_sendSucc
C508 —○
Success
modDaq2_sendErr
C509 —○
Error

4

modClinetSeq
CTD20 ⬛ 3
—|=|—

Receive (CPU Port:1)	MODBUS
IPAddress	192.168.1.22
ServerPortNo	502
Slave ID	0
Modbus Function Code	01
Slave Addr	1
NO. of Bits	8
	C1
Master	C232

modDaq3_recv
C510 —○
Receiving
modDaq3_recvSucc
C511 —○
Success
modDaq3_recvErr
C512 —○
Error

5

modClinetSeq
CTD20 ⬛ 4
—|=|—

Send (CPU Port:1)	MODBUS
IPAddress	192.168.1.22
ServerPortNo	502
Slave ID	0(Broadcast)
Modbus Function Code	15
Slave Addr	17
NO. of Bits	7
	V7
Master	C240

modDaq3_send
C513 —○
Sending
modDaq3_sendSucc
C514 —○
Success
modDaq3_sendErr
C515 —○
Error

6

_100ms_Clock
SC5
—| |—   Up

CT20
—| |—   Reset

Counter	CT20
SetPoint	⬛ 5
	modClinetSeq
Current	CTD20

CT20 —○
Complete

7

Return→

1

C1
C232
_1st_SCAN
SC2

Send (CPU Port:3)   ASCII
Type   Static
Byte Swap   None
Terminate Code   None   Sending
Send Message
          ($31)

rs485_1Send
C530

rs485_1Succ
C531

Success

2

C2
C233

Send (CPU Port:3)   ASCII
Type   Static
Byte Swap   None
Terminate Code   None   Sending
Send Message
          ($32)

rs485_2Send
C532

rs485_2Succ
C533

Success

3

C3
C234

Send (CPU Port:3)   ASCII
Type   Static
Byte Swap   None
Terminate Code   None   Sending
Send Message
          ($33)

rs485_3Send
C534

rs485_3Succ
C535

Success

4

C4
C235

Send (CPU Port:3)   ASCII
Type   Static
Byte Swap   None
Terminate Code   None   Sending
Send Message
          ($34)

rs485_4Send
C536

rs485_4Succ
C537

Success

5

_100ms_Clock
SC5

rs485_CT
CT21

Counter   CT21
SetPoint   4
Up
Current   CTD21
Reset

rs485_CT
CT21

Complete

6

Return

Rung 1

hmiCon	modHmi_b1	autoEnable_CMD
C21	C301	C1
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b1 |
| C22 | C341 |

| raspPiCon | modRasp_b1 |
| C23 | C381 |

Rung 2

hmiCon	modHmi_b2	autoDisable_CMD
C21	C302	C2
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b2 |
| C22 | C342 |

| raspPiCon | modRasp_b2 |
| C23 | C382 |

true = manual
false = auto

Rung 3

hmiCon	modHmi_b3	manual_CMD
C21	C303	C3
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b3 |
| C22 | C343 |

| raspPiCon | modRasp_b3 |
| C23 | C383 |

Rung 4

hmiCon	modHmi_b4	sort_CMD
C21	C304	C4
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b4 |
| C22 | C344 |

| raspPiCon | modRasp_b4 |
| C23 | C384 |

modLab_b5 when true will set LabVIEW as the control point

Rung 5

hmiCon	modHmi_b5	C5_CMD
C21	C305	C5
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b5 |
| C22 | C345 |

| raspPiCon | modRasp_b5 |
| C23 | C385 |

modNode_b6 when true will set nodeRed as the control point

Rung 6

hmiCon	modHmi_b6	C6_CMD
C21	C306	C6
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b6 |
| C22 | C346 |

| raspPiCon | modRasp_b6 |
| C23 | C386 |

Rung 7

hmiCon	modHmi_b7	C7_CMD
C21	C307	C7
─┤ ├─	─┤ ├─	─(OUT)─

| labViewCon | modLab_b7 |
| C22 | C347 |

| raspPiCon | modRasp_b7 |
| C23 | C387 |

```
         hmiCon          modHmi_b8                      C8_CMD
         ▣ C21           ▣ C308                         ▣ C8
8        ─┤ ├─            ─┤ ├─            ┌────────────( OUT )
         labViewCon      modLab_b8        │
         ▣ C22           ▣ C348           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b8       │
         ▣ C23           ▣ C388           │
         ─┤ ├─            ─┤ ├─           ┘

         hmiCon          modHmi_b9                      C9_CMD
         ▣ C21           ▣ C309                         ▣ C9
9        ─┤ ├─            ─┤ ├─            ┌────────────( OUT )
         labViewCon      modLab_b9        │
         ▣ C22           ▣ C349           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b9       │
         ▣ C23           ▣ C389           │
         ─┤ ├─            ─┤ ├─           ┘

         hmiCon          modHmi_b10                     reset_CMD
         ▣ C21           ▣ C310                         ▣ C10
10       ─┤ ├─            ─┤ ├─            ┌────────────( OUT )
         labViewCon      modLab_b10       │
         ▣ C22           ▣ C350           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b10      │
         ▣ C23           ▣ C390           │
         ─┤ ├─            ─┤ ├─           ┘

         hmiCon          modHmi_b11                     C11_CMD
         ▣ C21           ▣ C311                         ▣ C11
11       ─┤ ├─            ─┤ ├─            ┌────────────( OUT )
         labViewCon      modLab_b11       │
         ▣ C22           ▣ C351           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b11      │
         ▣ C23           ▣ C391           │
         ─┤ ├─            ─┤ ├─           ┘

         hmiCon          modHmi_b12                     col1_CMD
         ▣ C21           ▣ C312                         ▣ C12
12       ─┤ ├─            ─┤ ├─            ┌────────────( SET )
         labViewCon      modLab_b12       │
         ▣ C22           ▣ C352           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b12      │
         ▣ C23           ▣ C392           │
         ─┤ ├─            ─┤ ├─           ┤
         C1But                            │
         ▣ C236                           │
         ─┤ ├─                            ┘

         hmiCon          modHmi_b13                     col2_CMD
         ▣ C21           ▣ C313                         ▣ C13
13       ─┤ ├─            ─┤ ├─            ┌────────────( SET )
         labViewCon      modLab_b13       │
         ▣ C22           ▣ C353           │
         ─┤ ├─            ─┤ ├─           ┤
         raspPiCon       modRasp_b13      │
         ▣ C23           ▣ C393           │
         ─┤ ├─            ─┤ ├─           ┤
         C2But                            │
         ▣ C237                           │
         ─┤ ├─                            ┘
```

```
         hmiCon        modHmi_b14                        col3_CMD
         🔲 C21         🔲 C314                            🔲 C14
14      ──┤ ├──────────┤ ├────────┐              ┌──────( SET )
        labViewCon     modLab_b14  │              │
         🔲 C22         🔲 C354     │              │
        ──┤ ├──────────┤ ├─────────┤              │
        raspPiCon      modRasp_b14 │              │
         🔲 C23         🔲 C394     │              │
        ──┤ ├──────────┤ ├─────────┤              │
         C3But                     │              │
         🔲 C238                   │              │
        ──┤ ├─────────────────────┘              │


         hmiCon        modHmi_b15                        col4_CMD
         🔲 C21         🔲 C315                            🔲 C15
15      ──┤ ├──────────┤ ├────────┐              ┌──────( SET )
        labViewCon     modLab_b15  │              │
         🔲 C22         🔲 C355     │              │
        ──┤ ├──────────┤ ├─────────┤              │
        raspPiCon      modRasp_b15 │              │
         🔲 C23         🔲 C395     │              │
        ──┤ ├──────────┤ ├─────────┤              │
         C4But                     │              │
         🔲 C239                   │              │
        ──┤ ├─────────────────────┘              │


         hmiCon        modHmi_b16                        get_CMD
         🔲 C21         🔲 C316                            🔲 C16
16      ──┤ ├──────────┤ ├────────┐              ┌──────( OUT )
        labViewCon     modLab_b16  │              │
         🔲 C22         🔲 C356     │              │
        ──┤ ├──────────┤ ├─────────┤              │
        raspPiCon      modRasp_b16 │              │
         🔲 C23         🔲 C396     │              │
        ──┤ ├──────────┤ ├─────────┤              │
         getBut                    │              │
         🔲 X002                   │              │
        ──┤ ├─────────────────────┘              │


                        Return
17      ────────────────────────►
```

```
        hmiCon          modHmi_V0        state_man                    V0
        ▣ C21           ▣ C321           ▣ C53                       ▣ C225
1    ────┤ ├────────────┤ ├──────┬───────┤ ├──────────────────────(  OUT  )
                                  │
        labViewCon      modLab_V0 │
        ▣ C22           ▣ C361    │
     ────┤ ├────────────┤ ├───────┤
                                  │
        raspPiCon       modRasp_V0│
        ▣ C23           ▣ C401    │
     ────┤ ├────────────┤ ├───────┘
                                  │
        auto_V0         state_man        state_err
        ▣ C31           ▣ C53            ▣ C60
     ────┤ ├────────────┤/├──────────────┤/├──────┘

        hmiCon          modHmi_V1        state_man                    V1
        ▣ C21           ▣ C322           ▣ C53                       ▣ C226
2    ────┤ ├────────────┤ ├──────┬───────┤ ├──────────────────────(  OUT  )
                                  │
        labViewCon      modLab_V1 │
        ▣ C22           ▣ C362    │
     ────┤ ├────────────┤ ├───────┤
                                  │
        raspPiCon       modRasp_V1│
        ▣ C23           ▣ C402    │
     ────┤ ├────────────┤ ├───────┘
                                  │
        auto_V1         state_man        state_err
        ▣ C32           ▣ C53            ▣ C60
     ────┤ ├────────────┤/├──────────────┤/├──────┘

        hmiCon          modHmi_V2        state_man                    V2
        ▣ C21           ▣ C323           ▣ C53                       ▣ C227
3    ────┤ ├────────────┤ ├──────┬───────┤ ├──────────────────────(  OUT  )
                                  │
        labViewCon      modLab_V2 │
        ▣ C22           ▣ C363    │
     ────┤ ├────────────┤ ├───────┤
                                  │
        raspPiCon       modRasp_V2│
        ▣ C23           ▣ C403    │
     ────┤ ├────────────┤ ├───────┘
                                  │
        auto_V2         state_man        state_err
        ▣ C33           ▣ C53            ▣ C60
     ────┤ ├────────────┤/├──────────────┤/├──────┘

        hmiCon          modHmi_V3        state_man                    V3
        ▣ C21           ▣ C324           ▣ C53                       ▣ C228
4    ────┤ ├────────────┤ ├──────┬───────┤ ├──────────────────────(  OUT  )
                                  │
        labViewCon      modLab_V3 │
        ▣ C22           ▣ C364    │
     ────┤ ├────────────┤ ├───────┤
                                  │
        raspPiCon       modRasp_V3│
        ▣ C23           ▣ C404    │
     ────┤ ├────────────┤ ├───────┘
                                  │
        auto_V3         state_man        state_err
        ▣ C34           ▣ C53            ▣ C60
     ────┤ ├────────────┤/├──────────────┤/├──────┘

        hmiCon          modHmi_V4        state_man                    V4
        ▣ C21           ▣ C325           ▣ C53                       ▣ C229
5    ────┤ ├────────────┤ ├──────┬───────┤ ├──────────────────────(  OUT  )
                                  │
        labViewCon      modLab_V4 │
        ▣ C22           ▣ C365    │
     ────┤ ├────────────┤ ├───────┤
                                  │
        raspPiCon       modRasp_V4│
        ▣ C23           ▣ C405    │
     ────┤ ├────────────┤ ├───────┘
                                  │
        auto_V4         state_man        state_err
        ▣ C35           ▣ C53            ▣ C60
     ────┤ ├────────────┤/├──────────────┤/├──────┘
```

```
          hmiCon          modHmi_V5        state_man                      V5
          ▣ C21           ▣ C326           ▣ C53                          ▣ C230
6 ─────────┤ ├─────────────┤ ├─────────────┤ ├──────────┬──────────────( OUT )
          labViewCon      modLab_V5                      │
          ▣ C22           ▣ C366                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          raspPiCon       modRasp_V5                     │
          ▣ C23           ▣ C406                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          auto_V5         state_man        state_err     │
          ▣ C36           ▣ C53            ▣ C60         │
   ─────────┤ ├─────────────┤/├─────────────┤/├──────────┘


          hmiCon          modHmi_V6        state_man                      V6
          ▣ C21           ▣ C327           ▣ C53                          ▣ C231
7 ─────────┤ ├─────────────┤ ├─────────────┤ ├──────────┬──────────────( OUT )
          labViewCon      modLab_V6                      │
          ▣ C22           ▣ C367                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          raspPiCon       modRasp_V6                     │
          ▣ C23           ▣ C407                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          auto_V6         state_man        state_err     │
          ▣ C37           ▣ C53            ▣ C60         │
   ─────────┤ ├─────────────┤/├─────────────┤/├──────────┘


          hmiCon          modHmi_V7        state_man                      V7
          ▣ C21           ▣ C328           ▣ C53                          ▣ C240
8 ─────────┤ ├─────────────┤ ├─────────────┤ ├──────────┬──────────────( OUT )
          labViewCon      modLab_V7                      │
          ▣ C22           ▣ C368                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          raspPiCon       modRasp_V7                     │
          ▣ C23           ▣ C408                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          auto_V7         state_man        state_err     │
          ▣ C38           ▣ C53            ▣ C60         │
   ─────────┤ ├─────────────┤/├─────────────┤/├──────────┘


          hmiCon          modHmi_V8        state_man                      V8
          ▣ C21           ▣ C329           ▣ C53                          ▣ C241
9 ─────────┤ ├─────────────┤ ├─────────────┤ ├──────────┬──────────────( OUT )
          labViewCon      modLab_V8                      │
          ▣ C22           ▣ C369                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          raspPiCon       modRasp_V8                     │
          ▣ C23           ▣ C409                         │
   ─────────┤ ├─────────────┤ ├────────────────────────┤
          auto_V8         state_man        state_err     │
          ▣ C39           ▣ C53            ▣ C60         │
   ─────────┤ ├─────────────┤/├─────────────┤/├──────────┘


           hmiCon          modHmi_V9        state_man                     V9
           ▣ C21           ▣ C330           ▣ C53                         ▣ C242
10 ─────────┤ ├─────────────┤ ├─────────────┤ ├──────────┬─────────────( OUT )
           labViewCon      modLab_V9                      │
           ▣ C22           ▣ C370                         │
    ─────────┤ ├─────────────┤ ├────────────────────────┤
           raspPiCon       modRasp_V9                     │
           ▣ C23           ▣ C410                         │
    ─────────┤ ├─────────────┤ ├────────────────────────┤
           auto_V9         state_man        state_err     │
           ▣ C40           ▣ C53            ▣ C60         │
    ─────────┤ ├─────────────┤/├─────────────┤/├──────────┘
```

11
hmiCon C21	modHmi_V10 C331	state_man C53	V10 C243 (OUT)
labViewCon C22	modLab_V10 C371		
raspPiCon C23	modRasp_V10 C411		
auto_V10 C41	state_man C53 (/)	state_err C60 (/)	

12
hmiCon C21	modHmi_V11 C332	state_man C53	V11 C244 (OUT)
labViewCon C22	modLab_V11 C372		
raspPiCon C23	modRasp_V11 C412		
auto_V11 C42	manual_CMD C3 (/)	state_err C60 (/)	

13
hmiCon C21	modHmi_V12 C333	state_man C53	V12 C245 (OUT)
labViewCon C22	modLab_V12 C373		
raspPiCon C23	modRasp_V12 C413		
auto_V12 C43	state_man C53 (/)	state_err C60 (/)	

14
| state_err C60 | redLed Y001 (OUT) |

15
| state_man C53 | amberLed Y002 (OUT) |

16
| state_auto C51 | _500ms_Clock SC6 | greenLed Y003 (OUT) |
| autoEnabled C71 | | |

turn on col 1 led

17
| col1_CMD C12 | autoEnabled C71 | col1Led Y101 (OUT) |

turn on col 2 led

18
| col2_CMD C13 | autoEnabled C71 | col2Led Y102 (OUT) |

turn on col 3 led

19
| col3_CMD C14 | autoEnabled C71 | col3Led Y103 (OUT) |

turn on col 4 led

20
| col4_CMD C15 | autoEnabled C71 | col4Led Y104 (OUT) |

21
| getBut X002 | getLed Y105 (OUT) |

22   Return

1

P2
■ C222
─┤/├─

auto_V11
■ C42
─(OUT)

auto mode - enable disable

2

autoEnable_CMD
■ C1
─┤ ├─

autoDisable_CMD
■ C2
─┤/├─

manual_CMD
■ C3
─┤/├─

state_err
■ C60
─┤/├─

autoEnabled
■ C71
─(OUT)

autoEnabled
■ C71
─┤ ├─

reset all process bits when system is not in auto or goes into manual or alarm mode mode

3

autoEnabled
■ C71
─┤/├─

sort_drop1
■ C121   ■ C200
─(RST)

state_man
■ C53
─┤↑├─

auto_V0   auto_V12
■ C31   ■ C43
─(RST)

state_err
■ C60
─┤↑├─

col1_CMD   get_CMD
■ C12   ■ C16
─(RST)

hmi connection logic.
if hmi connection is healthy then and either the node red or labiver client is disconnected then the connection will revert back to the hmi.

4

hmiCon
■ C21
─┤↑├─

hmiCon
■ C21
─(SET)

hmiDiscon
■ C24
─┤/├─

nodRedDiscon
■ C26
─┤↑├─

labViewCon raspPiCon
■ C22   ■ C23
─(RST)

labViewDiscon
■ C25
─┤↑├─

labview connection logic.
if labview connection is healthy and node red connection is unhealthy and hmi is disconnected then a labview connection is establlised.

5

labViewCon
■ C22
─┤↑├─

labViewCon
■ C22
─(SET)

labViewDiscon
■ C25
─┤/├─

nodRedDiscon
■ C26
─┤ ├─

hmiDiscon
■ C24
─┤↑├─

hmiCon
■ C21
─(RST)

modLab_b5
■ C345
─┤ ├─

raspPiCon
■ C23
─(RST)

node red connection logic.
if node red connection is healthy and hmi is disconnected then a node red connection is established.

6

raspPiCon
■ C23
─┤↑├─

raspPiCon
■ C23
─(SET)

nodRedDiscon
■ C26
─┤/├─

hmiDiscon
■ C24
─┤↑├─

hmiCon labViewCon
■ C21   ■ C22
─(RST)

modRasp_b6
■ C386
─┤ ├─

hmiDiscon
■ C24
─┤ ├─

labViewDiscon
■ C25
─┤↑├─

7

hmi_heartBeat
▮ DS5   ▮ 4
─┤≧├─

Timer(ON Delay)	T2	hmi_watchDogTimer1
Current Value	Not Retained	■ T2
Unit	ms	─( )─
Enable SetPoint	▮ 2000	Output
Current	▮ TD2	

8

hmi_heartBeat
▮ DS5   ▮ 4
─┤<├─

Timer(ON Delay)	T3	hmi_watchDogTimer2
Current Value	Not Retained	■ T3
Unit	ms	─( )─
Enable SetPoint	▮ 2000	Output
Current	▮ TD3	

9

hmi_watchDogTimer1
⊞ T2
— | | —

hmi_watchDogTimer2
⊞ T3
— | | —

hmiDiscon
⊞ C24
—(OUT)—

node red watch dog variables

10

_1sec_Clock
⊞ SC7
— |↑| —

Copy	Single
	labView_watchdog
Src	⊞ DS7
	labView_watchDogMem
Des	⊞ DS8

11

_1sec_Clock
⊞ SC7
— |↓| —

labViewDiscon
⊞ C25
— | | —

labView_watchd
og
⊞ DS7

labView_watchD
ogMem
⊞ DS8
— |=| —

labViewDiscon
⊞ C25
—(OUT)—

node red watch dog variables

12

_1sec_Clock
⊞ SC7
— |↑| —

Copy	Single
	nodeRed_watchDog
Src	⊞ DS9
	nodeRed_watchDogMem
Des	⊞ DS10

13

_1sec_Clock
⊞ SC7
— |↓| —

nodRedDiscon
⊞ C26
— | | —

nodeRed_watch
Dog
⊞ DS9

nodeRed_watch
DogMem
⊞ DS10
— |=| —

nodRedDiscon
⊞ C26
—(OUT)—

14

2SecTimer_2
⊞ T5
— |/| —

Timer(ON Delay)	T4
Current Value	Not Retained
Unit	ms
Enable SetPoint	⊞ 2000
Current	⊞ TD4

2SecTimer_1
⊞ T4
Output
—( )—

15

2SecTimer_1
⊞ T4
— | | —

Timer(ON Delay)	T5
Current Value	Not Retained
Unit	ms
Enable SetPoint	⊞ 2000
Current	⊞ TD5

2SecTimer_2
⊞ T5
Output
—( )—

16

Return