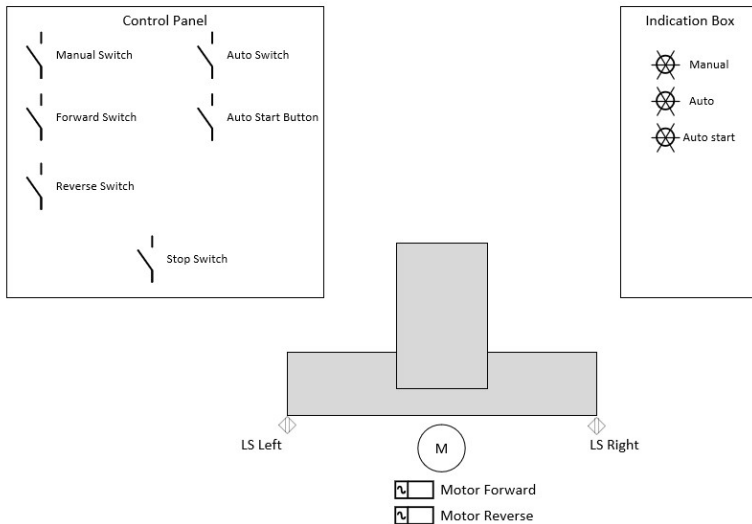# Drilling Control Machine

Manual operation:

- When *Forward Switch* is ON, motor moves forward. It can be stopped by *Stop Switch*. When the drill touches *Limit Switch Right*, the motor is cut-off.
- When *Reverse Switch* is ON, motor moves in reverse. It can be stopped by *Stop Switch*. When the drill touches *Limit Switch Left*, the motor is cut-off.

Automatic operation:

When *Auto Start Button* and *Limit Switch Left* are ON, the motor moves forward until *Limit Switch Right* is activated. The Timer makes delay of 4 sec. and motor reverses after this time. When it returns to *Limit Switch Left* position, the cycle is repeated.

```
1   PROGRAM MAIN
2   VAR
3       // Control Buttons
4       ManualSwitch: BOOL;
5       AutoSwitch: BOOL;
6       AutoStartButton: BOOL;
7       ForwardSwitch: BOOL;
8       ReverseSwitch: BOOL;
9       StopSwitch: BOOL;
10
11      // Limit switches
12      LimitSwitchRight: BOOL;
13      LimitSwitchLeft: BOOL;
14
15      // Operation modes
16      ManualMode: BOOL;
17      AutoMode: BOOL;
18      AutoStart: BOOL;
19      ManualForward: BOOL;
20      ManualReverse: BOOL;
21      ConfirmAutoForward: BOOL;
22      AutoForward: BOOL;
23      AutoReverse: BOOL;
24
25      // Output coils
26      MotorForward: BOOL;
27      MotorReverse: BOOL;
28
29      // Aux. blocks
30      tonForward: TON;
31  END_VAR
```

1 — *Manual indication*

```
ManualSwitch    AutoSwitch                                                          ManualMode
    ┤├           ┤/├                                                                   ( )
```

2 — *Auto indication*

```
AutoSwitch     ManualSwitch                                                          AutoMode
    ┤├           ┤/├                                                                   ( )
```

3 — *Manual forward*

```
ManualMode   ForwardSwitch   StopSwitch   LimitSwitchRight   ManualReverse          ManualForward
   ┤├           ┤├             ┤/├            ┤/├               ┤/├                      ( )

ManualForward
   ┤├
```

4 — *Manual reverse*

```
ManualMode   ReverseSwitch   StopSwitch   LimitSwitchLeft   ManualForward           ManualReverse
   ┤├           ┤├             ┤/├            ┤/├               ┤/├                      ( )

ManualReverse
   ┤├
```

5 — *Auto start*

```
AutoMode   AutoStartButton   LimitSwitchLeft   StopSwitch                           AutoStart
   ┤├           ┤├              ┤├              ┤/├                                     ( )

AutoStart
   ┤├

ConfirmAutoForward
   ┤├
```

6 — *Auto forward*

```
AutoStart   LimitSwitchLeft   ConfirmAutoForward   StopSwitch                       AutoForward
   ┤├           ┤├              ┤/├                 ┤/├                                 ( )

AutoForward
   ┤├
```

7 — *Confirm auto forward*

```
AutoMode   LimitSwitchRight   LimitSwitchLeft   StopSwitch                          ConfirmAutoForward
   ┤├           ┤├              ┤/├              ┤/├                                    ( )

ConfirmAutoForward                              tonForward
   ┤├                                          ┌─────────┐
                                               │   TON   │
                                               │IN      Q│
                                        T#4S ──┤PT     ET├──
                                               └─────────┘
```

8 — *Auto reverse*

```
tonForward.Q                                                                        AutoReverse
   ┤├                                                                                  ( )
```

9 — *Motor FORWARD*

```
ManualForward                                                                       MotorForward
   ┤├                                                                                  ( )

AutoForward
   ┤├
```

10 — *Motor REVERSE*

```
ManualReverse                                                                       MotorReverse
   ┤├                                                                                  ( )

AutoReverse
   ┤├
```