



Commercial & Residential Elevators

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Commercial & Residential Vertical Platform Lifts

### TTL SMART RELAY CONTROL MANUAL

Trus-T-Lifts equipped with Smart relay controls operate differently than lifts equipped with standard relay logic. The Smart relay takes input signals from pushbuttons, limit switches, safety circuit and motor contactors and makes control decisions to operate the motor contactors, door interlocks and in-use lights with relay outputs.

#### Inputs:

- Down Car call Button - I2
- Up Car call Button - I3
- Bottom Landing call Button - I4
- Top Landing call Button - I5
- Lower Limit switch – I6
- Upper Limit switch – I7
- Safety Circuit - I8
- Welded Contactor – I1

#### Outputs:

- Up Contactor – Q1
- Down Contactor – Q2
- Door Interlock Coils – Q3
- In-use Lights (For fully enclosed lifts) – Q4

In order for the lift to run in the down direction there must be voltage at I6, I8 & I1 without pressing a button and voltage at I2 or I4 when a down call button is pushed. In order for the lift to run in the up direction there must be voltage at I7, I8 & I1 without pressing a button and voltage at I3 or I5 when a up call button is pushed. There is a time delay of 0.9s from when the motor stops to when it can be started again to prevent instant reversing. There is a 6s time delay from when any car control is released or when all doors and gates are closed to when a hall call button can be used. This is a code requirement that allows the user in the car time to exit the lift before the car can be called to an alternate landing. Door/Gate interlocks will unlock for 60s when the car reaches the landing. The door lock timer will reset for 60s each time the landing button is pressed. The interlock will lock immediately when an alternate landing button is pressed.

#### Faults:

- Welded Contact
  - This fault occurs when any of the 3 motor contactors remain activated or welded in the closed position after the buttons are released. The control will not permit the motor to run until the all contactors are in the normal state. This can be checked by measuring voltage at I1.
- Stuck Lower or Upper Limit SW.
  - This fault occurs when either the upper or lower limit switch remains activated for more than 2s when the car is moving by pushing the operating buttons. When this occurs the control will activate interlock output Q3 unlocking the landing door/gate that corresponds to the stuck limit switch and stopping the motor. This fault can only be cleared by repairing the switch and recycling power to the smart relay.