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Product	Optidrive Elevator

Title	Optidrive Elevator Current Limits & Overload

Summary	This document gives information on the set up of the Optidrive Elevator Current Limits & Overload

Note: Please read in conjunction with the Optidrive Elevator User Guide.

Current limit

The Optidrive Elevator has a motoring current limit parameter (P4-07) and regenerating current limit parameter (P4-09) which controls and limits the output current in the vector speed control modes.

As default the motoring current limit is set to 150% of drive rated current (maximum setting of P1-08) and the regenerating current limit is set to 100% of drive rated current (maximum setting of P1-08).

If the drive rated current is reduced to the motor rated current (motor nameplate) rating, the current limits will correspond to 150% and 100% of the motor rated current value.

The current limits can be increased or reduced as required for the particular application requirements by adjusting P4-07 and/or P4.09.

During motor start up and acceleration, if the load causes the inverters output current increases to the current limit value, the inverter will hold the motor current at that value and it will increase the acceleration ramp time to control the motor current. The motor should continue accelerating (slowly) to the set speed.

Under some circumstances – incorrectly wired motor or seized motor/load etc, the drive will sit in current limit and the output frequency will limit itself to approx. 5Hz. The drive will eventually trip on I.t-trP (Ixt overload trip).

The amount of current the drive is outputting can be monitored on the drives display by pressing and releasing the Navigate button. This changes the drives display from output frequency to output current. To change the display back to output frequency on the display, press and release the Navigate button twice. The display cycles from output frequency (H) to output current (A) to output power (P) and then back to output frequency (H).

During normal running when the motor and load is at set speed, if the inverters output current increases to the current limit, the inverters output frequency will start to reduce in order to control the motor current.

The inverter will output 150% motoring current or 100% regenerating for 60s and then will trip on an overload trip **I.t-trP**.

Overload
I.t-trP – Current x Time Trip

The Optidrive Elevator will run continuously at 100% of the motor rated current set in P1-08. If the current exceeds the value in P1-08, the overload accumulator will start integrating. The time the Optidrive Elevator takes to trip on I.t-trp depends on the level that the current exceeds P-08 by and also if that level is continuous.

Motoring I.t-trP trips times
110% of P1-08 – trip time approx. 300s
120% of P1-08 – trip time approx. 240s
130% of P1-08 – trip time approx. 180s
140% of P1-08 – trip time approx. 120s
150% of P1-08 – trip time approx. 60s

If the time in overload is intermittent, for example when starting a heavy load several times per hour, the trip time maybe many minutes or even hours or the drive may not trip as the overload accumulator increases when in overload and decreases when not in overload.

When the Optidrive Elevator goes into overload, all of the decimal points on the drives LED display will flash. This can be a normal occurrence when accelerating of a motor quickly with a heavy load/inertia.

Common causes of the drive going into overload, current limit or drive tripping on I.t-trP.

- Incorrect motor connections – check correct star or delta connections for motor/drive and voltage
- Faulty motor
- Motor or load seized/jammed
- Load to big for motor/inverter – load drawing too much current
- Accelerating or decelerating the load too quickly
- P4-01 (control mode) set to 0 (Advanced vector speed control) and incorrect power factor entered in P4-05 when autotune carried out. Enter correct power factor or change P4-01 = 1 (vector speed control) and carry out an autotune.