

### 1. Application description

This application note describes how to use two digital inputs (IN0 and IN1), to start/stop the motor movement.

### 2. Application flow chart

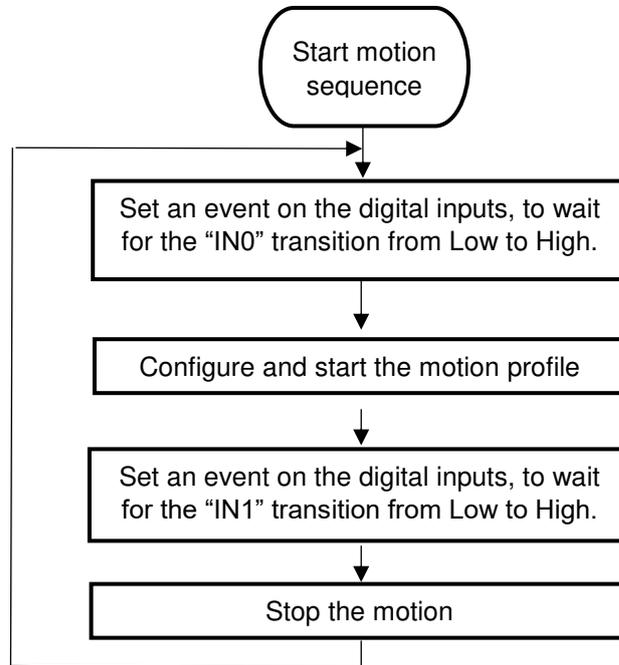


Figure 1. Application flow chart

### 3. ESM implementation

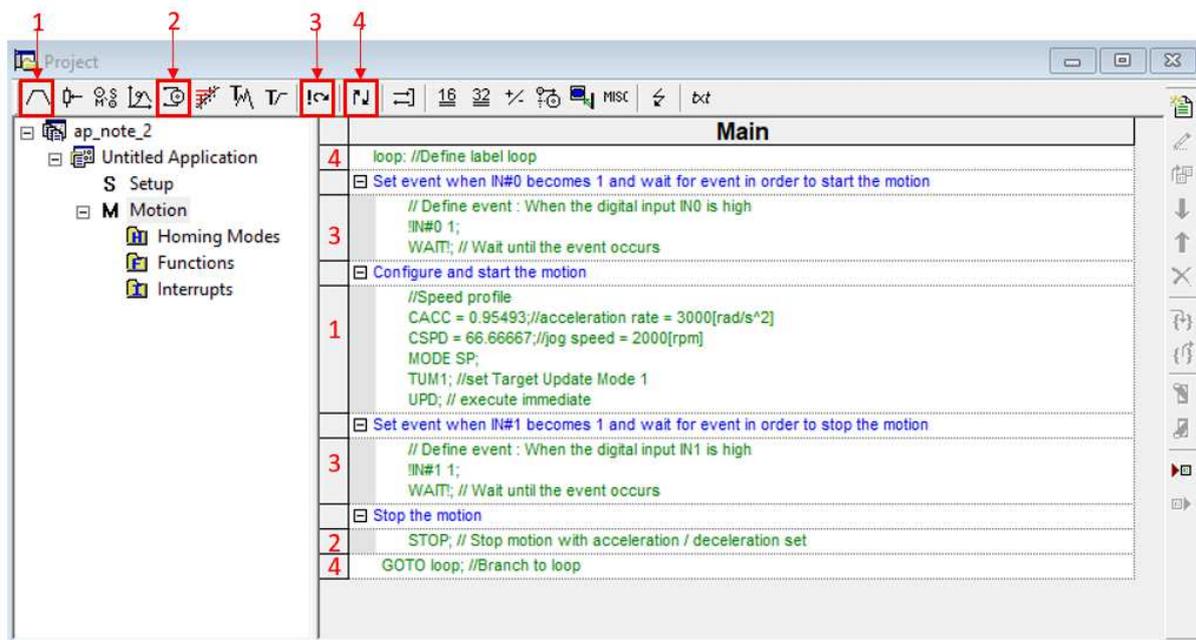


Figure 2. ESM implementation

#### 4. Detailed description of the EasyMotion Studio implementation

The motor is rotated using a speed profile, that starts when the “IN0” digital input goes High and stops when the “IN1” digital input became active (goes High).

The inputs status is monitored using an event on the digital inputs that can be generated using the “Events” dialog.

- The “Events” dialogue allows defining a programmable condition and can be opened by clicking on the button marked with 3 in Figure 2.

The “Change Event” button in the “Events” dialog will open the “Event Type” window that allows to select the needed condition and to configure it. In this application example, the “*Function of input status*” event type was selected and set to monitor the “IN0” digital input and then the “IN1” digital input, to stop the motion.

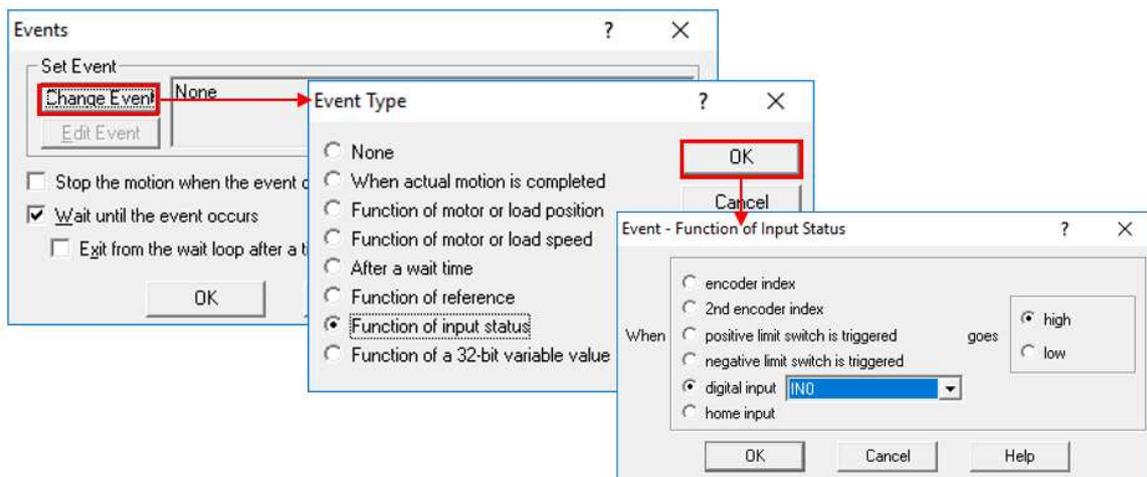


Figure 3. Set an event on the “IN0” digital input

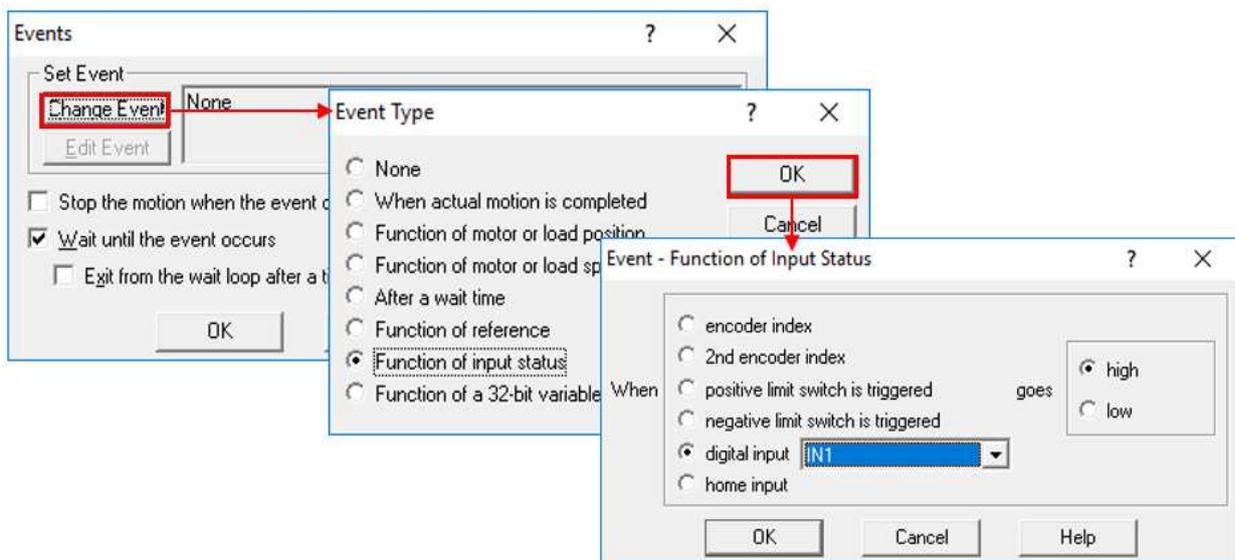
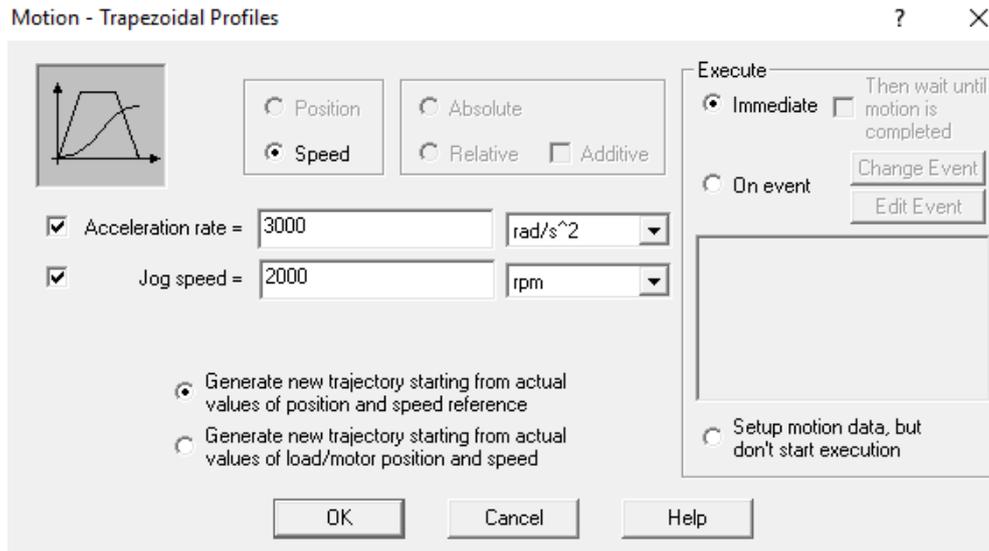


Figure 4. Set an event on the “IN1” digital input

- The “Motion – Trapezoidal Profiles” dialogue (1) allows to program a position or speed profile with a trapezoidal shape of the speed, due to a limited acceleration. In this case, it was used to insert the speed profile.



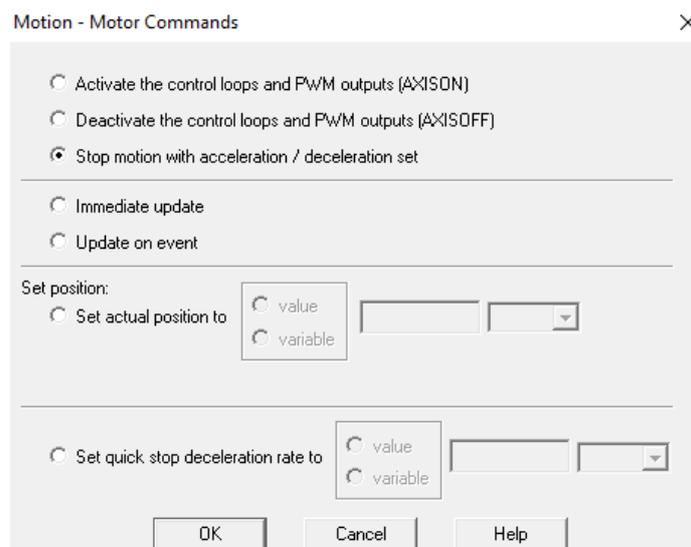
**Figure 5.** How to configure a speed profile

Choosing the speed profile, the load/motor is controlled in speed. The “jog speed” (speed sign specifies the rotation direction) and the “acceleration rate” are the input parameters for this motion mode.

Once the profile is executed, the load/motor accelerates until the jog speed is reached.

- The “Motion - Motor Commands” dialogue (2), was used to stop the motor, after the “IN1” digital input transition was detected by the event described above.

The “*Stop the motor with acceleration / deceleration set*” TML command will stop the motor using a deceleration equal with the “CACC” (acceleration rate) parameter value. In this case the “CACC” (acceleration rate) parameter value is the one that was set in the “Motion – Trapezoidal Profiles” dialogue (1) described above (CACC = 3000 rad/s^2).

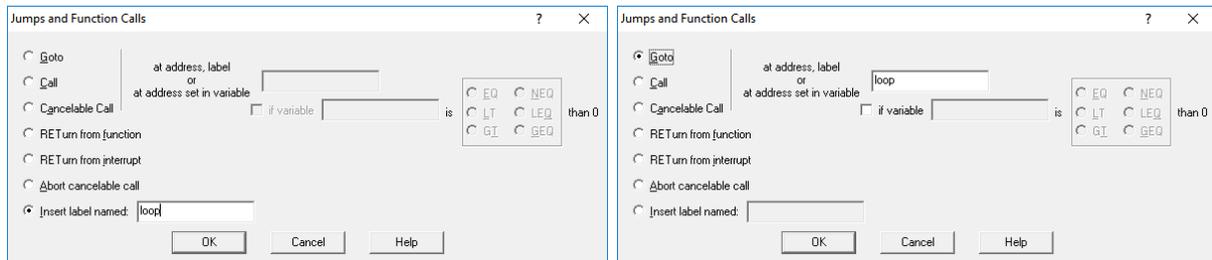


**Figure 6.** How to stop the motion using a controlled deceleration

• In order for the program to run continuously, the code above was introduced in an infinite loop that was created using the “Jumps and Function Calls” dialogue (4).

**Remark:** The “Jumps and Function Calls” dialogue allows to control the TML program flow through unconditional or conditional jumps and unconditional, conditional or cancelable calls of TML functions.

The infinite loop was created using a label and a “GOTO” TML instruction that makes the program to jump to the respective label.



**Figure 7.** How to create a loop using a label and a “GOTO” TML instruction

The label name can be any string of up to 32 characters, which starts with an alphanumeric character or with underscore. In this case the label was named “loop” and placed at the beginning of the TML application program.

The “GOTO” TML instruction indicates the jump address as address, label or address set in variable. In this case it was specified as the label name (“loop”).

## 5. Conclusions

This application note shows how the TML code execution can be conditioned by two digital inputs but indirectly it also presents the PLC embedded functionality of the Technosoft drives.

The Technosoft drives have a series of digital inputs and outputs that can be used to interconnect the drive with a master device or with a control panel.

Function on the drive type there are also available one or two analog inputs. These inputs can be used, for example, to interconnect different analog sensors or to impose the position / speed reference from a potentiometer or from a device that outputs an analog signal.

As external reference, the Technosoft drives accept also the “Pulse” and “Direction” signals that can be single ended or differential.

The Technosoft drives can be described, in few words as “compact, high power-density motion control programmable drives packed on a tiny area”.