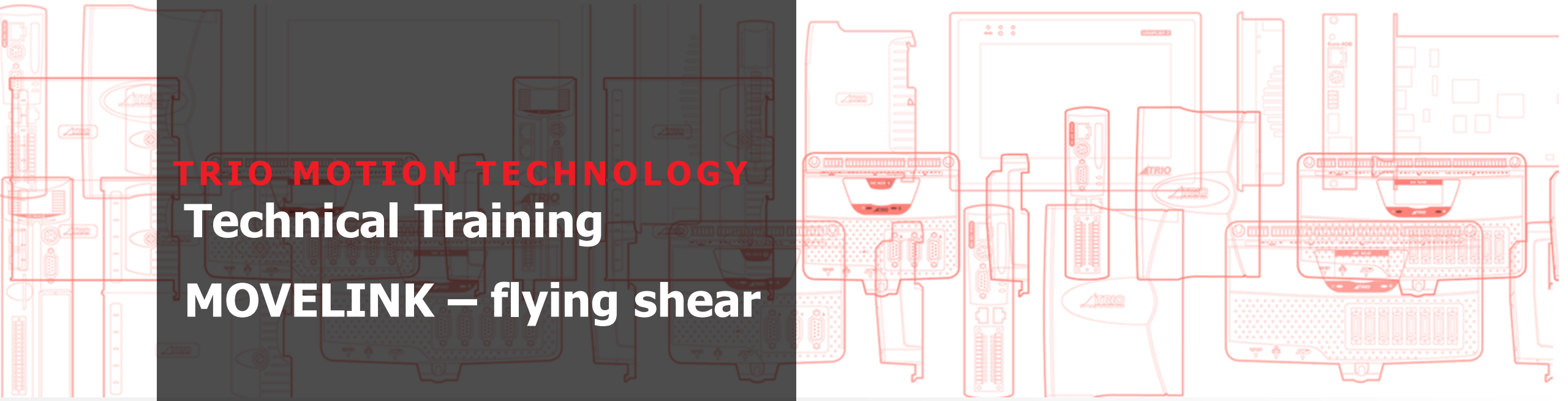
TRIO MOTION TECHNOLOGY

A MEMBER OF THE ESTUN GROUP

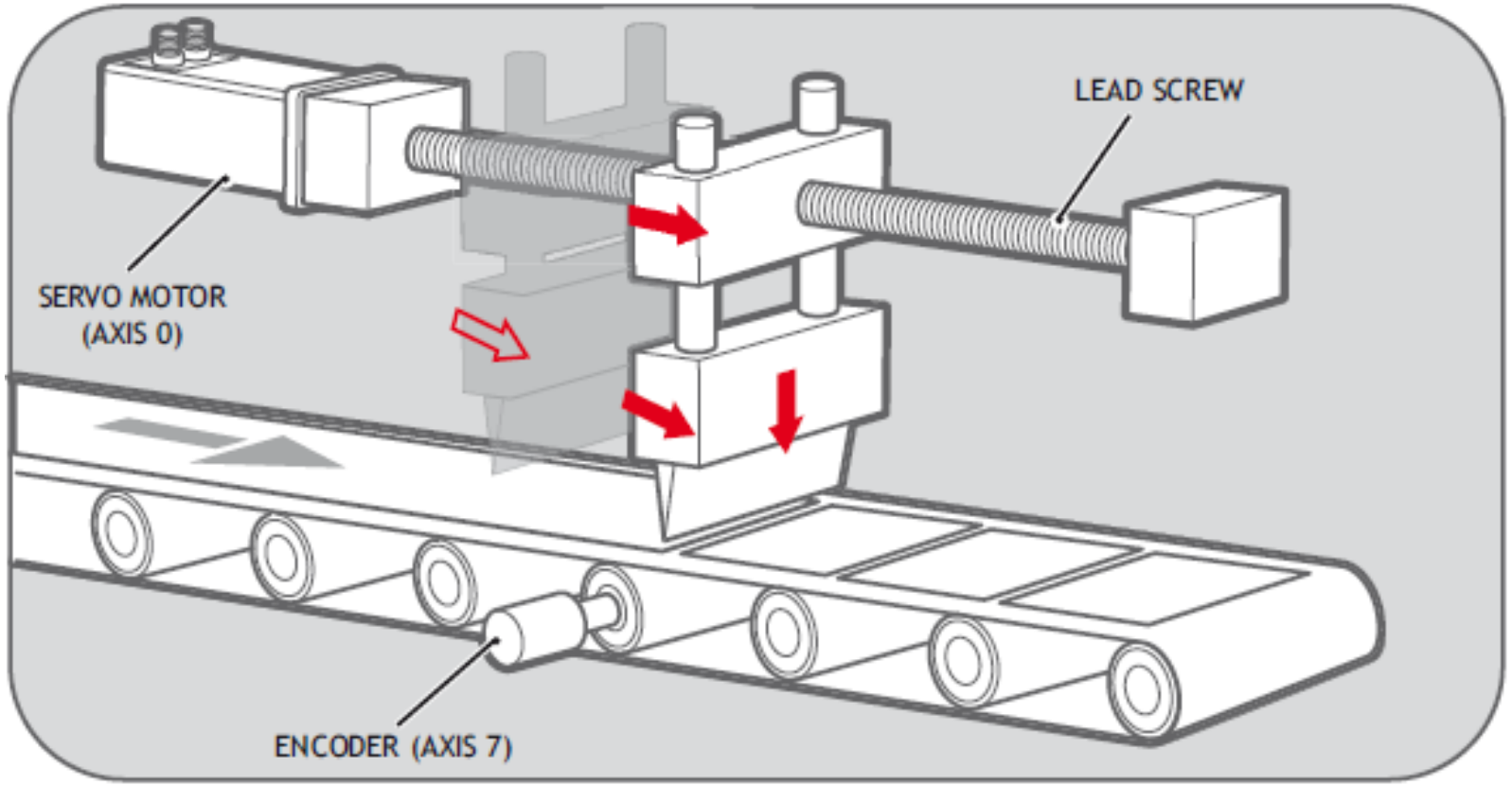
TRIO MOTION TECHNOLOGY

Technical Training

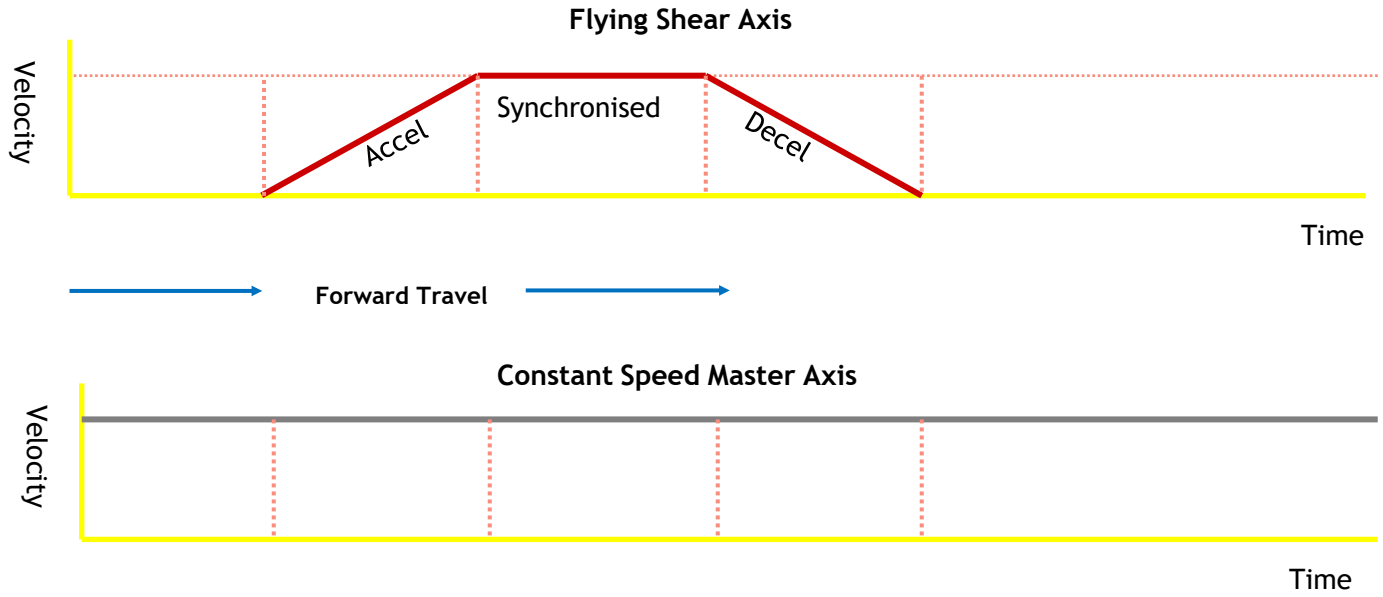
MOVELINK – flying shear



Reciprocating flying cutter



Required Motion

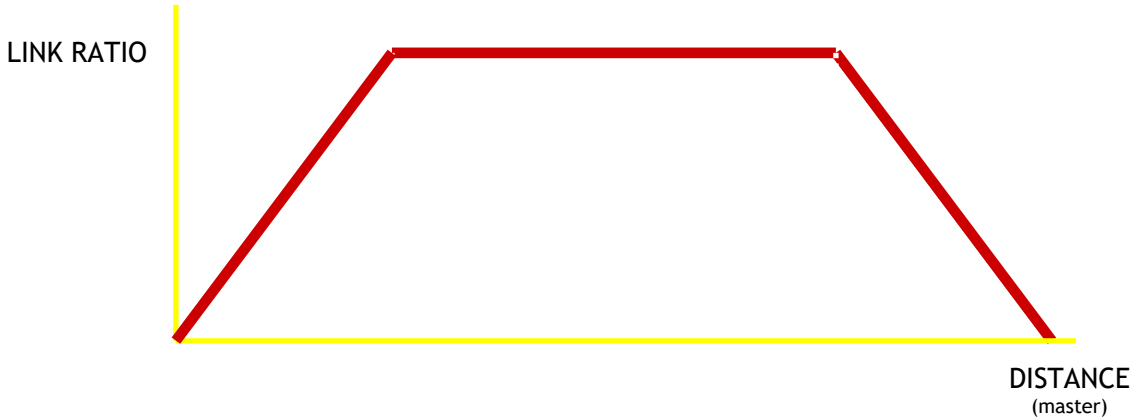


Think of it as a varying gearbox, that allows the slave axis to be "clutched" into and out of synchronisation over a predetermined distance.

The MOVELINK command

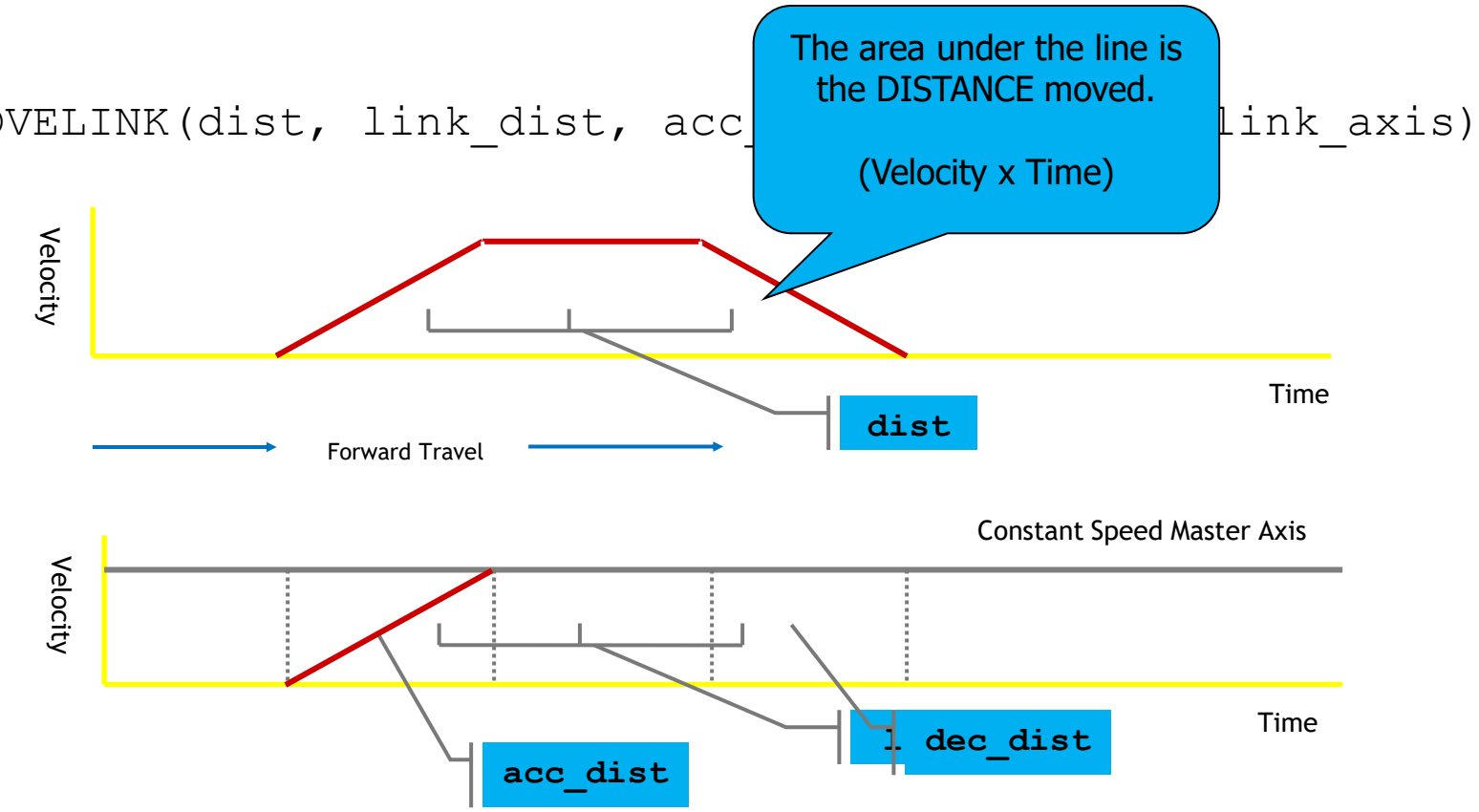
Slave axis parameter

```
MOVELINK(distance, link_dist, acc_dist, dec_dist, link_axis)
```

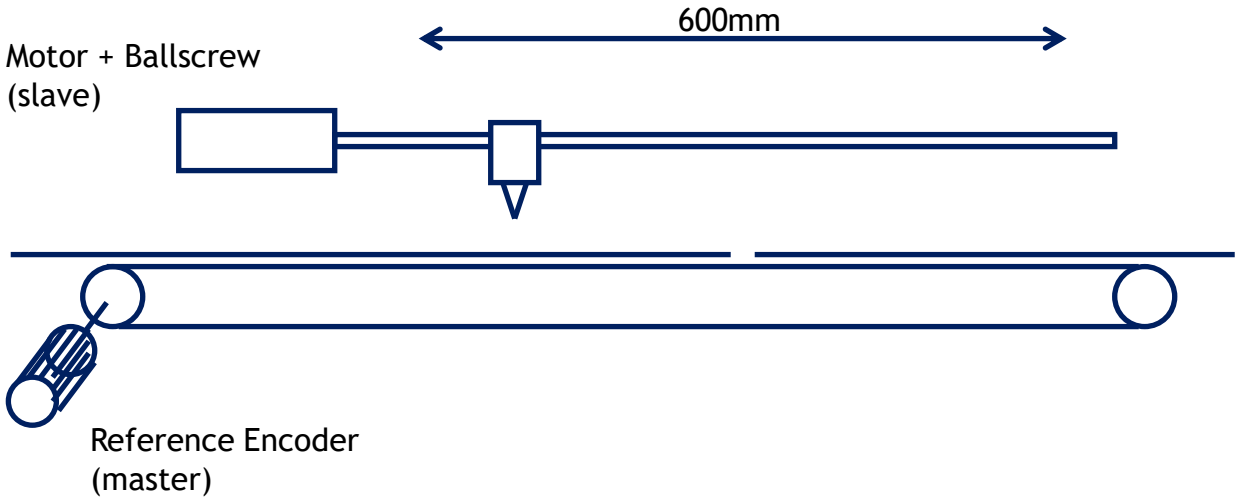


MOVELINK Parameters

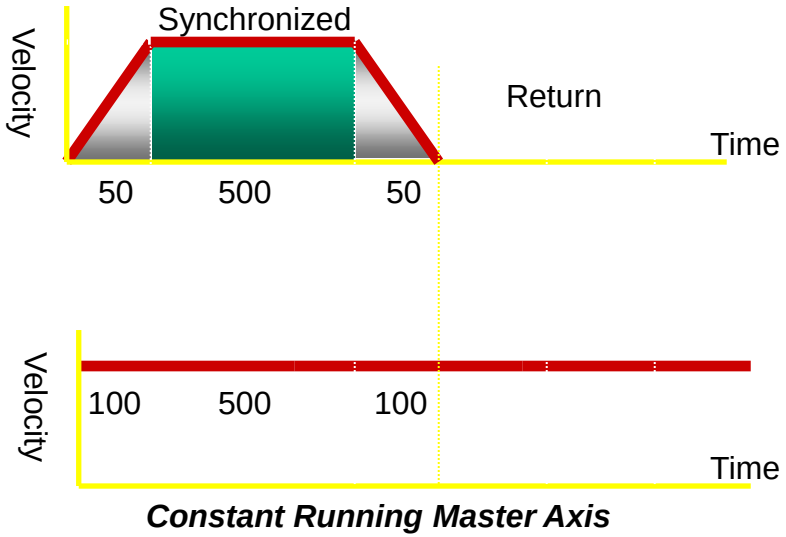
```
MOVELINK(dist, link_dist, acc                    link_axis)
```



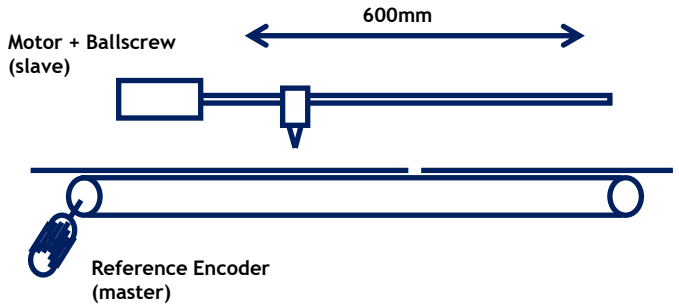
MOVELINK Worked example



MOVELINK worked example



Constant Running Master Axis

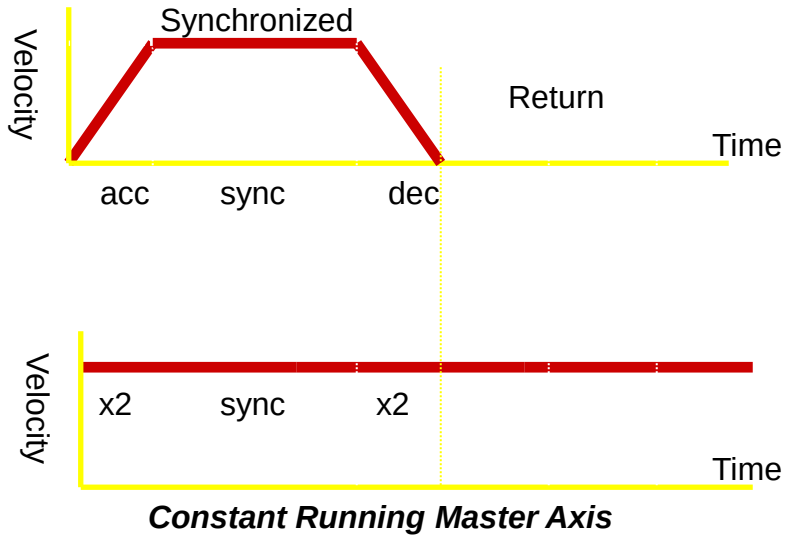



```
MOVELINK(50,100,100,0,master)   'Accel portion
MOVELINK(500,500,0,0,master)    'Sync portion
MOVELINK(50,100,0,100,master)   'Decel portion
```

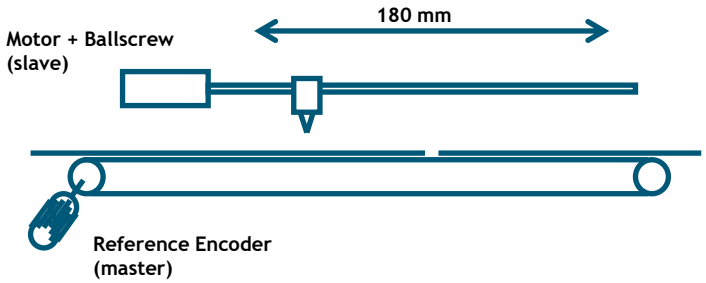
OR

```
MOVELINK(600,700,100,100,master)   'Traverse profile
```

MOVELINK Your turn!



Constant Running Master Axis



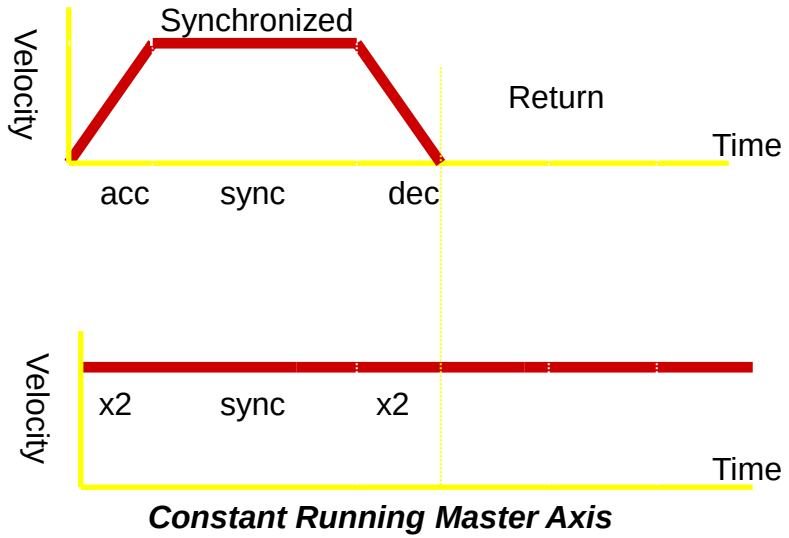
MOVELINK(dist, link_dist, acc_dist, dec_dist, link_axis)

```
MOVELINK(20,40,40,0,master)   'Accel portion
MOVELINK(140,140,0,0,master)  'Sync portion
MOVELINK(20,40,0,40,master)   'Decel portion
```

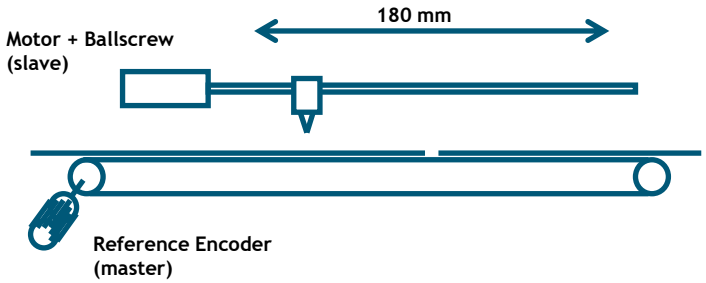
OR

```
MOVELINK(180,220,40,40,master)   'MOVELINK profile
```

MOVELINK - parameter calculation



Constant Running Master Axis



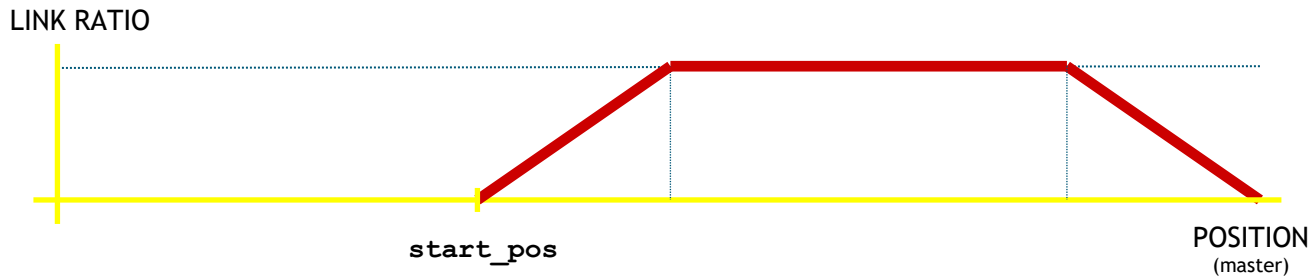

```
distance = 180
slave_acc_dist = 30
slave_dec_dist = 30
ad = slave_acc_dist * 2
dd = slave_dec_dist * 2
link_dist = distance + (ad + dd) / 2

MOVELINK(distance, link_dist, ad, dd, master_axis) ' MOVELINK profile
```

MOVELINK Program 1

```
WHILE TRUE
  WAIT UNTIL IN(0)=OFF
  WAIT UNTIL IN(0)=ON
  BASE(0)
  MOVELINK(180, 220, 40, 40, 1) 'follow axis 1
  WAIT IDLE
WEND
  MOVELINK(-180, 180, 60, 60, 1) 'reverse movelink
  WAIT IDLE
WEND
```

Start Mode Parameters



MOVELINK(dist, link_dist, acc_dist, dec_dist, link_axis, *<mode>,<start_pos>*)

MODE

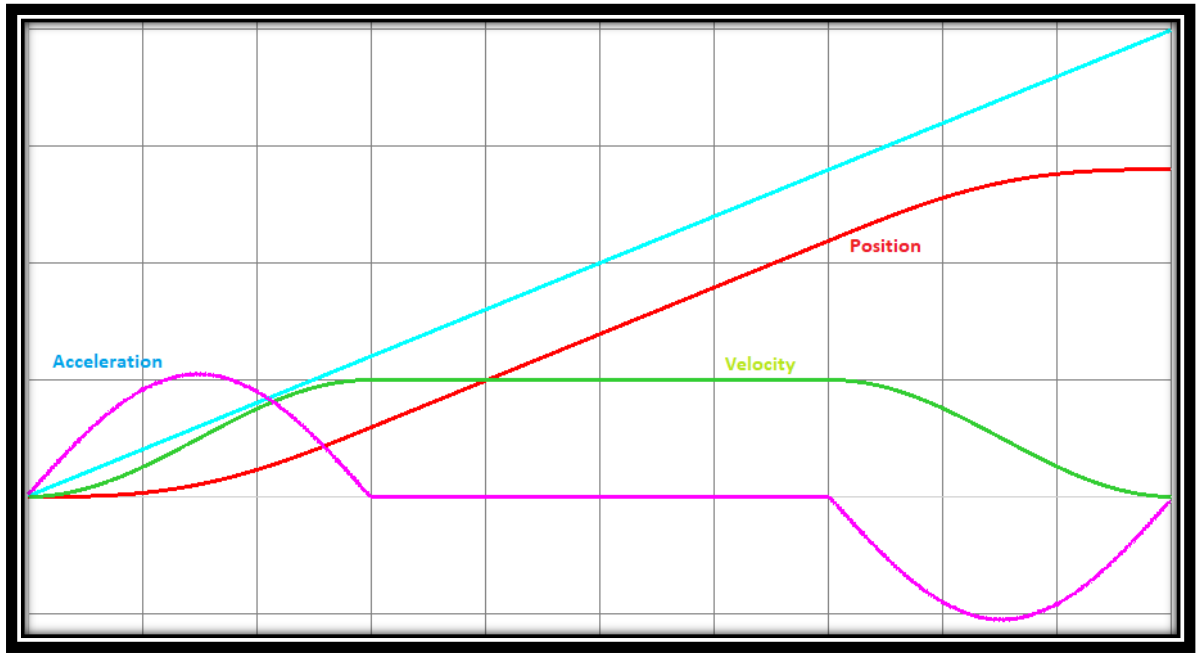
1 Start the linked move when the registration event occurs

2 Start the linked move when the master axis reaches the specified (absolute) position, defined by *start_pos*

4 The MOVELINK repeats cyclically and automatically

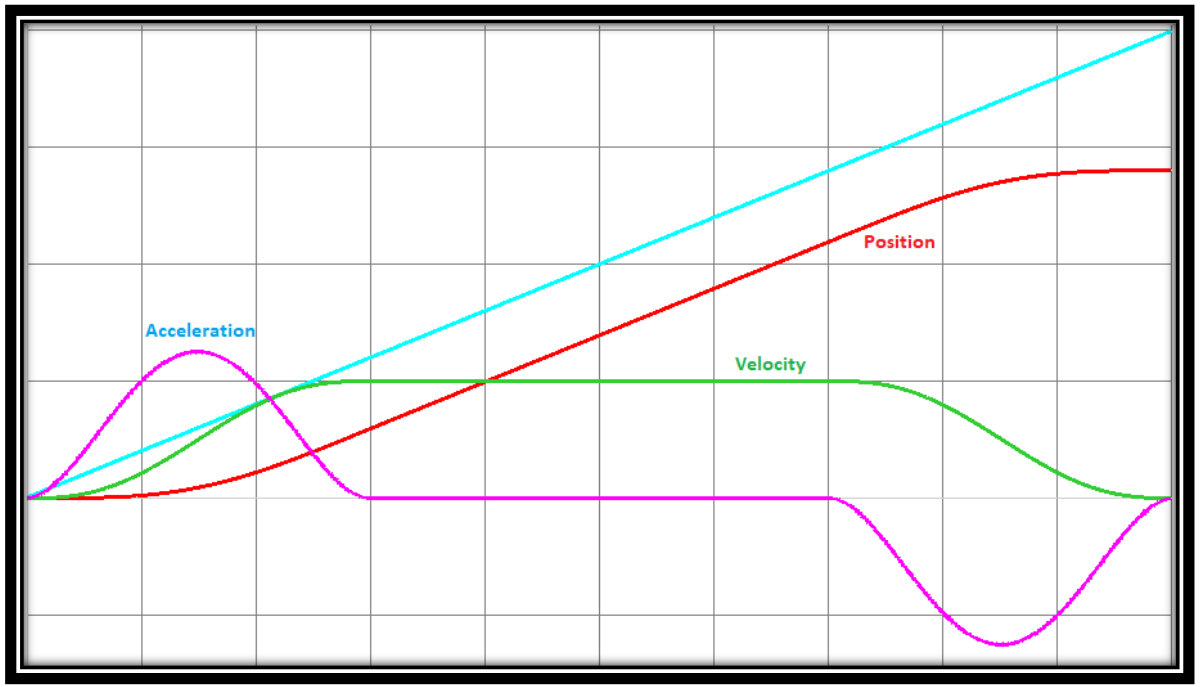
Other options

Sinusoidal S-Curve: Options bit 4 = 1 and bits 10 & 11 = 0)

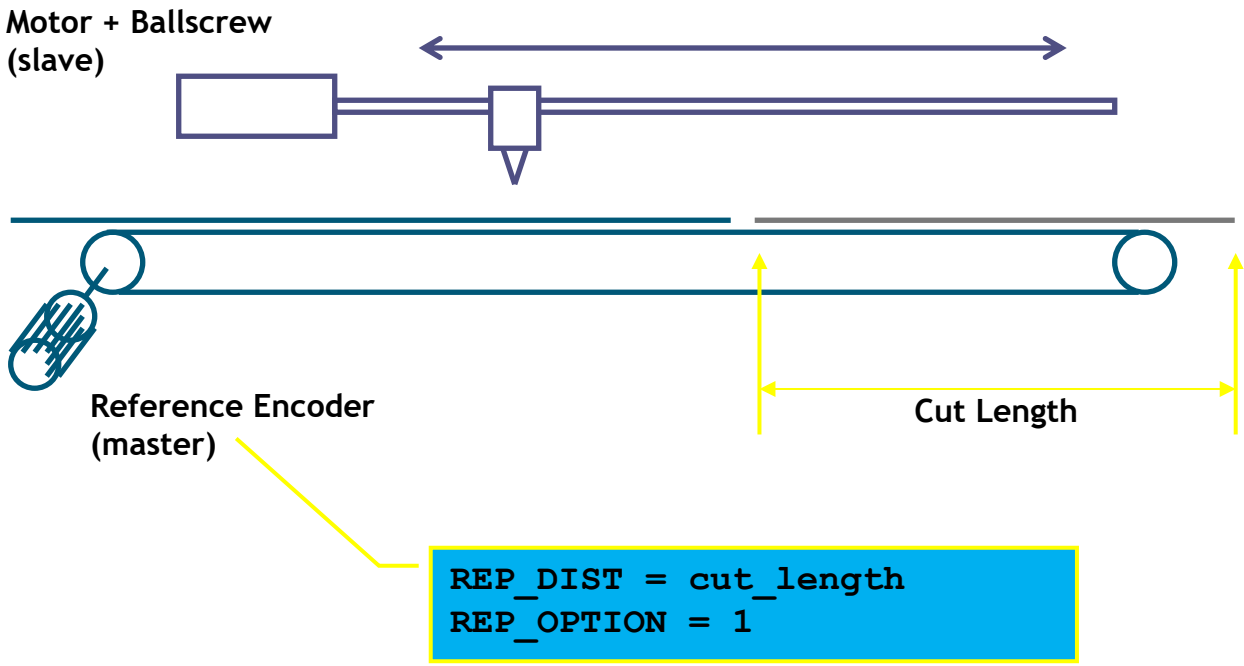


MOVELINK(dist, ld, accd, decd, link_axis, options)

Power 5 polynomial S-Curve: bit 4 = 1 and bits 10 & 11 = 3



Setting the Cut Length



MOVELINK Program 2 - Flying Shear

```
cut_op = 8
cut_length = 5 ' declare VR(5) as register for length
BASE(conveyor)
REP_OPTION = 1
REP_DIST = VR(cut_length)
GOSUB calc_ml_params

REPEAT
  BASE(shear)
  MOVELINK(distance, link_dist, ad, dd, 1, 2, 0) ' move starts at 0
  WAIT UNTIL MPOS > slave_acc_dist + 5
  TIMER(0, cut_op, 1, 150) 'turns ON output for 150 milliseconds
  WAIT IDLE

  MOVELINK(-distance, distance, 60, 60, 1)
  WAIT IDLE

  REP_DIST AXIS(conveyor) = VR(cut_length) ' update the length
UNTIL FALSE
```

```
calc_ml_params:
  distance = 180
  slave_acc_dist = 30
  slave_dec_dist = 30
  ad = slave_acc_dist * 2
  dd = slave_dec_dist * 2
  link_dist = distance + (ad + dd) / 2
RETURN
```

Flying Shear - thank you for listening