

SPEED-Commander Frequency Controller

Operating Instructions

Software version 5.1.7a

Caution: Special Software

Program no. 05

Forward one way positioning

- **Parameter list and connection of control terminals in accordance with enclosed program description**
- **All other points accordance with enclosed standard operational instructions**

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Forward one way positioning

Please refer to **SPEED COMMANDER VECTOR** standard operating instructions for assembly, installation and for parameter setting.

Description:

Forward one way positioning are used for assignments where the motor must go a certain distance and stop in a fixed position. There must be a reset for every cycle to correct inaccuracy, this can be done with a photo sensor or switch.

It is possible to select a second set of parameter values for distance, speed, acceleration, deceleration and position step. Following parameters are used for second parameter set: 2*, 3*, 4*, 5* and 8*. It is activated by applying a +10V/24 signal to terminal 5.

Function:

1. Continuous distance where the reference signal is only used at first run. Set Par. 7* (Second set 8*) = 0 (Reference signal not used while running) (Fig. A).
2. Continuous distance with reference at each step. And the reference switch controls the no of position step. (Fig. B)
3. As no 2 but with different distance between positions e.g. package on a conveyer belt. (Fig. C).

Connection: The power supply and the motor are connected in accordance with the standard terminal connection diagram and the control terminals in accordance with the wiring diagram below. Do not connect terminals 6 and 7 at first so that the drive doesn't start by itself when the power supply is connected. Then power up the Speed Commander and do the parameter setting. Then connect the wires at terminal 6+7 and then it is ready for normal operation. **Please note: If you do not use a potentiometer to control frequency, place a connection between terminal 3 and 1.**

Start-up:

After powering up must the motor and counter direction be controlled. Do this in TIP mode by applying signal to terminal 6 (reverses) or 7 (forwards). If the motor runs in the wrong direction, switch over two of the motor wires. If the counter direction is wrong switch over the encoder signal A/B.

TIP mode: Set the Speed Commander in off mode (No signal at terminal 6+7) then press the STEP/STORE button and keep it pressed. Then use the ▲ (forward) or ▼ (reverses) button to run with the motor.

Reference run: At every power up is a reference run required so that the controller knows where it is. The first start command initialise a reference run against the reference point. If the signal at the input terminal 8 (reference input) is 0 will the motor run forward until the reference switch is activated (+10V or +24V at terminal 8). If the reference switch is activated when the reference run is initiated is the reference run skipped and the controller is ready to operate in normal mode. Reference run is performed with TIP frequency (Par. C).

Please note: Parameter A* (Reference function) If A* = 0 is the reference switch only used normal mode. If A* = 1 is the reference switch also used in OFF mode under reference run.

Positioning:

This type of position is recommended for one way positioning with or without reference correction at every cycle.

The position length is set up in par 1* and 2*. To use position length 2* apply a +10V signal at terminal 5

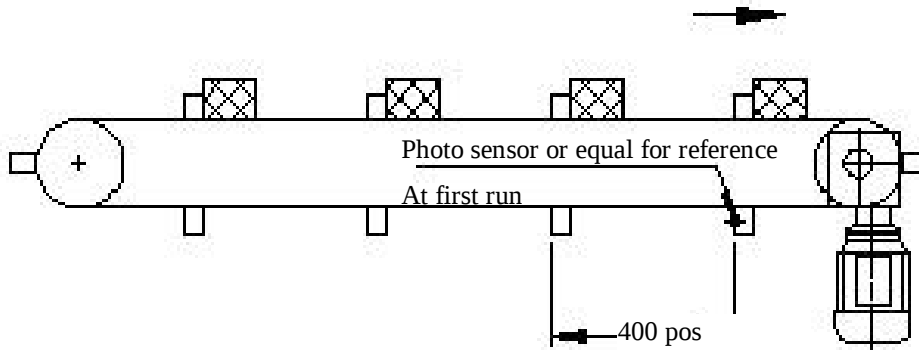
First time a "Go to position" command is received after power up the system would perform a reference run to find the zero position (reference switch). A "go to position" command is initiated by activating terminal 6 and 7 at the same time for 50ms. The reference run is done with the frequency set up in par. C. After the reference run the motor would go the position length the number times set up in par. 7* (8*). The system would stop if a reference position isn't found before 2 times the position length. This safety function can be aborted by activating terminal 2, this can also be used if there are different distance between the object on the conveyer belt or as a emptying function. If par. 7* (8*) is set to 0, will the system only do a reference run first time after power up. But the position length would be corrected every time a new start is received. When activating TIP inputs the motor would go forward or reverses with the frequency set up in par. C.

Analogue control of speed:

It is possible to control the motor frequency between Par. 1 and 2 with a analogue signal at terminal 3 (0-10V).

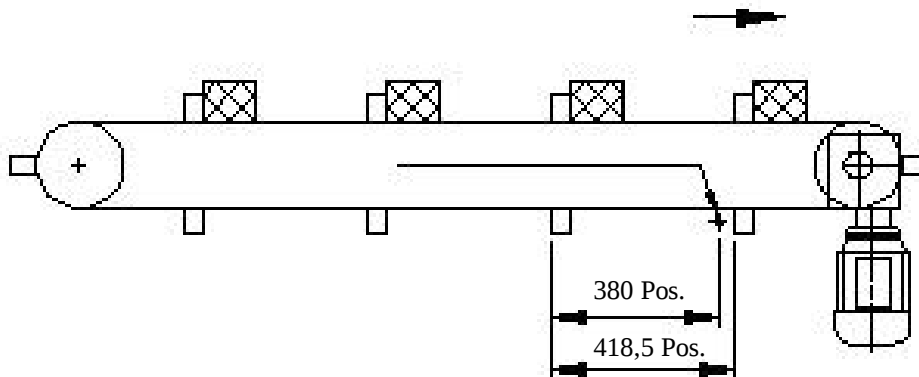
Note: If this function is not used connect terminal 3 to 1 (+10V). Then the motor will run with the speed set up in par. 1.

Forward one way positioning



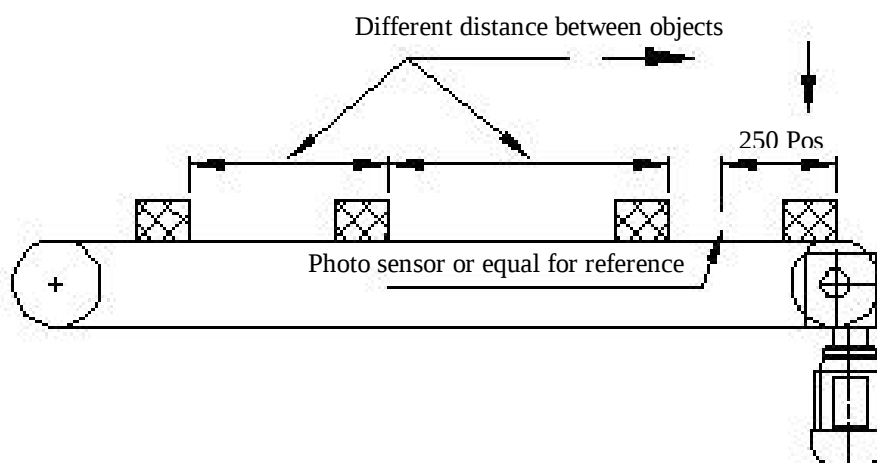
A:

No. of position is continuous.
Only ref. At start up
Fault in position will be corrected
at next run. (If a run is 399 be-
cause of position tolerance the
next run will be 401 positions)
Parameter 1* = 400
Parameter 7* = 0



B:

As A but with reference at every
run. Distance is continuous.
Parameter 1* = 380
Parameter 7* = 1
If a reference signal isn't present
before 2 times the length of the
position the motor will stop.



C:

With reference signal at every
run. Different distance between
objects.
Parameter 1* = 250
Parameter 7* = 1

Terminal 2 must be activated
(+10 or +24Volts - Empty belt
function)

Forward one way positioning

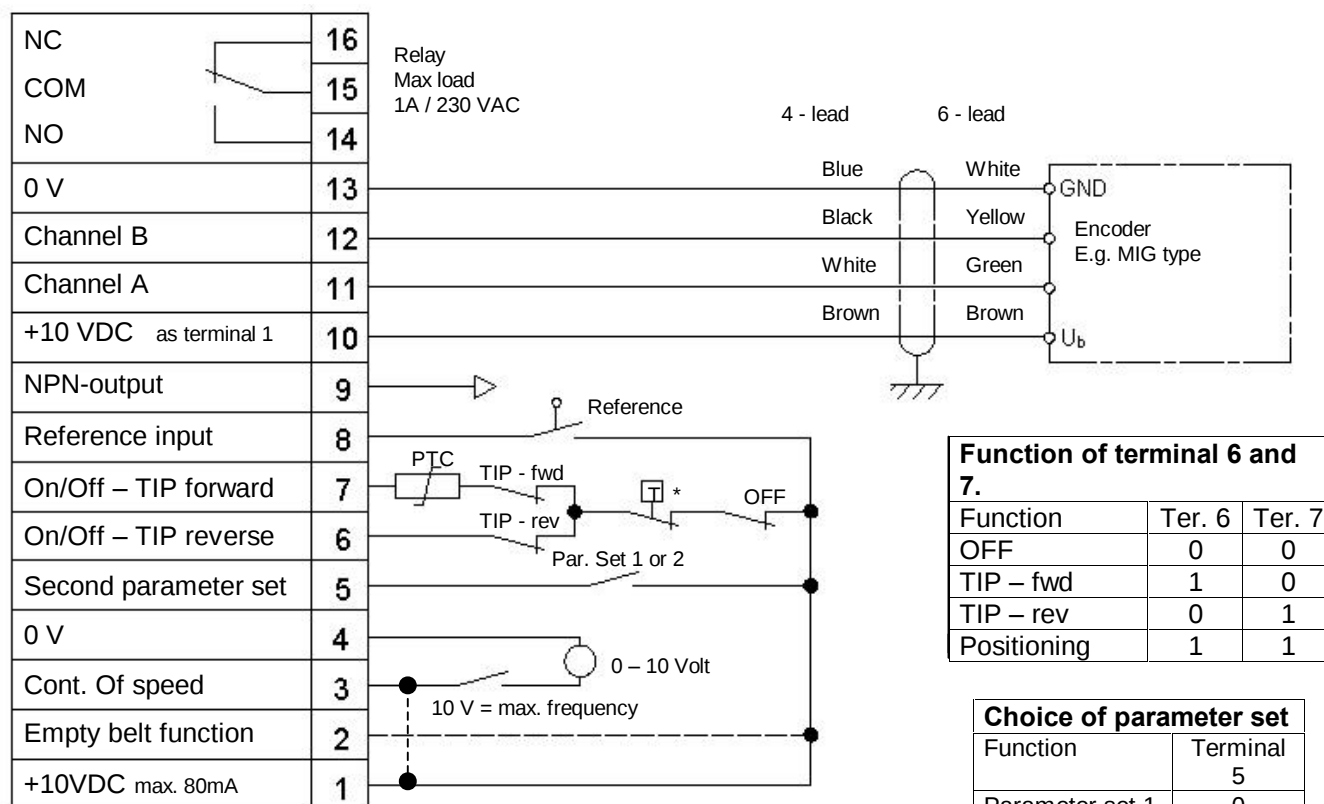
Parameter list

Par-No.	Function	Value range:	Default:	Description:
1*	Position length	0 - 999.999	1000	Position length no. 1 No. Of positions after reference position
2*	Position length 2	0 - 999.999	2000	Position length no. 2 (Used when signal at terminal 5)
1	1. max. frequency	0,0 - 400 Hz	50,0 Hz	Max. frequency no. 1
2	Min. Frequency	0,0 - 400 Hz	0,1 Hz	Min. start frequency
3	1. Acceleration	0,1 - 999 Hz/s	15,0 Hz/s	Acceleration no. 1
4	Deceleration	0,1 - 999 Hz/s	15,0 Hz/s	See standard operating instructions
5	V/F – curve	24,5 - 400 Hz	50,0 Hz	See standard operating instructions – Frequency cross point
6	Boost	0,0 - 25%	5,0 %	See standard operating instructions
7	DC – Brake current	0,0 - 25%	5,0 %	See standard operating instructions
8	DC – Brake time	0,0 -120 s	0,1 s	See standard operating instructions
9	Start frequency	0 - 20.0 Hz	0 Hz	See standard operating instructions
A	Stop frequency	0 - 20.0 Hz	0 Hz	See standard operating instructions
b	Current limit	50 - 150%	150%	See standard operating instructions
C	TIP - frequency	0 - 400 Hz	10 Hz	Motor frequency when running in TIP and reference m mode
d	Switch frequency	2,0 - 8,0 KHz	2,5 KHz	See standard operating instructions
E	Auto recovery	0 - 4	0	See standard operating instructions
F	Display readout	0 - 200	30	30 - 33: Position / See standard operating instructions Example: 12.406 30: Showing the first 3 digits: 12.4 31: Scrolling display: 12.406 = 12. $\Rightarrow$ 12.4 $\Rightarrow$ 2.40 $\Rightarrow$ 406 32: Showing the last 3 digits: 406 33: Showing thousands: 012. Note: Scale factor par. G has affect on the position readout.
G	Scale factor	0,001 - 1000,	1,000	Scale for readout and setting of par. 1*, 2* and 9*
H	Relay function	0 - 99	82	See standard operating instructions 82 / 83 – activated / not activated in position after reference signal.
J	NPN output	0 - 120	82	See standard operating instructions 82 / 83 – activated / not activated in position after reference signal.
L	Motor revolutions./mi	0 - 3.000	1.350	At 50 Hz (see motor spec). Scrolling readout when n>1000
P	Impulses pr. rotation.	1 - 1000	50	Set encoder pulses pr. rev. (MIG 1 pulse = 4 positions)
U	Position tolerance	0 - 999	3	See standard operating instructions
y	Position hysteresis	1 - 999	3	See standard operating instructions
3*	Second par. 1	0-400Hz	50,0 Hz	Max. frequency no. 2 (Used when signal at terminal 5)
4*	Second par. 3	0,1 - 999Hz pr. second	15,0 Hz/s	Acceleration no. 2 (Used when signal at terminal 5)
5*	Second par. 4	0,1 - 999Hz pr. second	15,0 Hz/s	Deceleration no. 2 (Used when signal at terminal 5)
6*	Second par. U	0 - 999	3	Positions tolerance no. 2(Used when signal at terminal 5)
7*	No of positioning step	0 - 999.999	1	No of times that position length is carried out. (If = 0 reference is only done at start up)
8*	Second par. 7*	0 - 999.999	1	As 7* (Used when signal at terminal 5)
9*	Overrun	0 - 999.999	0	Motor will go no. of positions set up in this par further when positions is reached and then return. (To correct mechanical slip in systems)
A*	Reset function	0-1	0	0 = Normal / 1 = Possible to reset in OFF mode too (At ref. run)
X	Not flashing	X*	Flashing	

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Connections:

Internal control power 10V DC



External control power 24V DC

