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Document number	Imoticon-ID700-022
Revision	0.0
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Product	Imoticon ID700

Title	Imoticon ID700 Torque Control
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Summary	This document gives information on setting up the Imoticon ID700 for torque control
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NOTE: Please read in conjunction with the Imoticon ID700 Easy Start Guide and Imoticon ID700 Advanced User Manual.

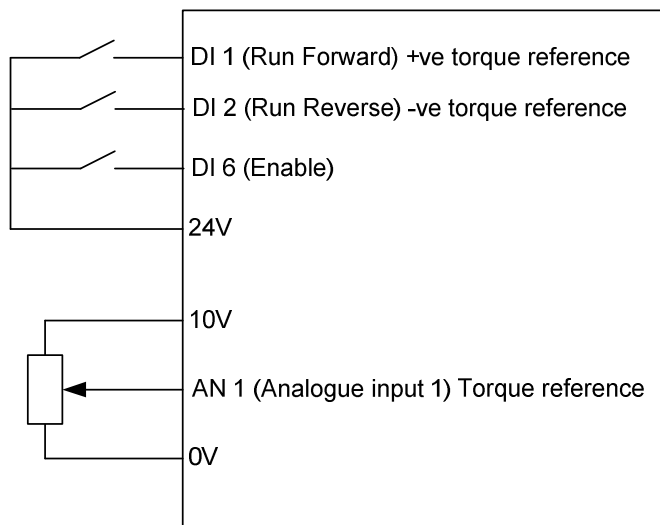
Overview

The Imoticon ID700 can be set up in torque control rather than the standard speed control. Menu 7 is used to set up torque control.

When the ID700 is set up in torque control, the drives output frequency is changed to achieve the desired torque (current). Therefore the output frequency depends on the torque reference and the load on the motor.

With the following set up, analogue input 1 is used as the torque reference.

Basic minimum control terminal connections



Basic parameter set up for torque control

Parameter	Setting	Description
P00.02	Motor rated current	Set to the motor nameplate current rating
P00.04	1	Control mode to terminal control
P00.23	1	Advanced parameter access
P07.02	1	Torque control
P07.03	150%	Current limit set to 150%
P07.16	150%	Motoring torque producing current limit set to 150%

NOTES:

The output frequency is limited by P07.18 (Maximum speed in torque mode).

The final torque reference is affected by P07.20 (torque gain) and P07.21 (torque offset).

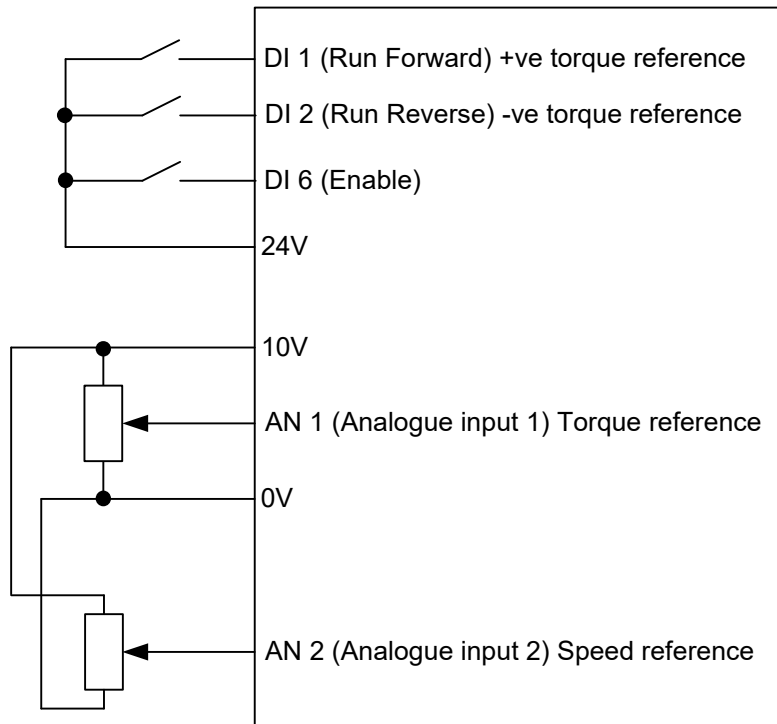
In torque mode, the acceleration and deceleration ramps (P00.08 & P00.09) have no effect during acceleration or when the torque reference is changed because the output speed is controlled by the torque reference and motor load. Therefore on an unloaded motor with a high torque reference on the ID700, the motor will accelerate very quickly to full speed. Potentially this could cause over current trips (F001). By setting the current limits to 150% as above, this can help prevent over current trips.

The deceleration ramp (P00.09) is active when the run forward or run reverse terminals are opened.

Torque Control with speed override

With the following set up, analogue input 1 is used as the torque reference and analogue input 2 is used to limit the motor speed.

Basic minimum control terminal connections



Basic parameter set up for torque control

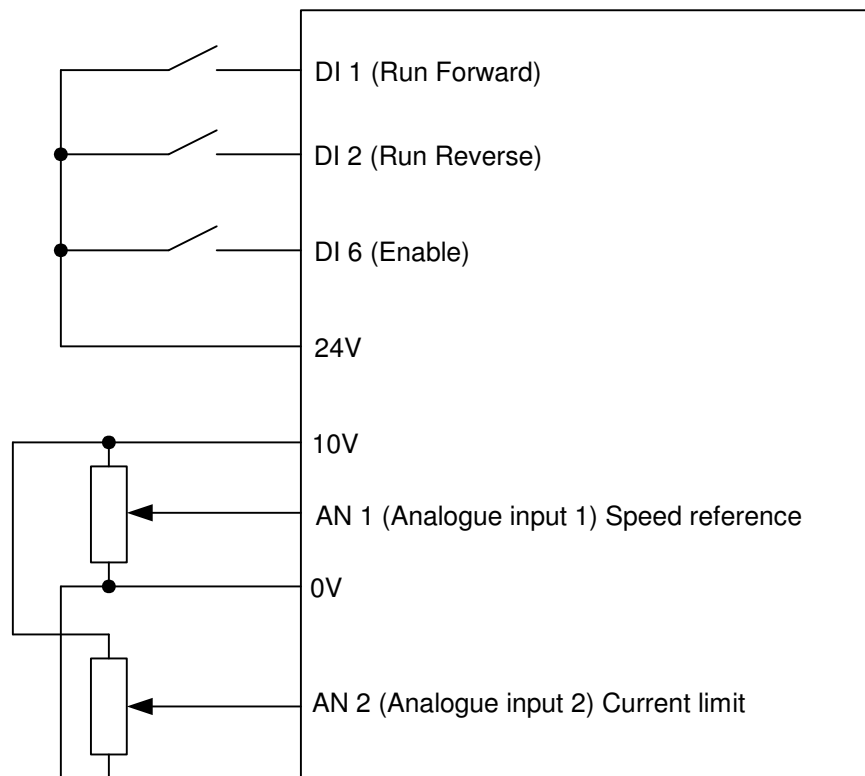
Parameter	Setting	Description
P00.02	Motor rated current	Set to the motor nameplate current rating
P00.04	1	Control mode to terminal control
P00.23	1	Advanced parameter access
P01.02	41.66	Maximum speed
P07.02	1	Torque control
P07.03	150%	Current limit set to 150%
P07.16	150%	Motoring torque producing current limit set to 150%
P08.01	1	Analogue input function level control
P08.08	7.18	Analogue input 2 controlling maximum allowed speed in torque control

P07.18 has a range of 1.2 X maximum speed (P01.02). Therefore as default, the speed can increase up to 60Hz. To limit the speed to 50Hz, change P01.02 to 41.66 Hz.

Controlling current limit and speed

With the following set up, analogue input 1 is used as the speed reference and analogue input 2 is used to control the current limit.

Basic minimum control terminal connections



Basic parameter set up for torque control

Parameter	Setting	Description
P00.02	Motor rated current	Set to the motor nameplate current rating
P00.04	1	Control mode to terminal control
P00.05	3	Analogue input 1 as speed reference
P00.23	1	Advanced parameter access
P08.01	1	Analogue input function level control
P08.08	7.03	Analogue input 2 controlling current limit
P08.10	0.5	Analogue input 2 scaling so that analogue input 2 controls 0 to 100% current limit

Because this set up is in speed control, the acceleration and deceleration ramps are still active so this set up can have a smoother control than if the drive was set up in torque control.

Analogue input 2 controls the drives current limit parameter (P07.03). This has the effect of controlling motor speed if the motor requires more current than is available.

Analogue input 1 can be used to control the speed limit.