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Document number	Imoticon-ID700-020
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Author	Gareth Lloyd
Product	Imoticon ID700
Title	Imoticon ID700 Dynamic Braking
Summary	This document gives information on setting up the Imoticon ID700 for dynamic braking

NOTE: Please read in conjunction with the Imoticon ID700 Easy Start Guide and Imoticon ID700 Advanced User Manual.

Overview

Dynamic braking is a method used to dissipate the excess energy that is generated when a load being controlled by an AC inverter drive is quickly slowed down or stopped.

When a motor (especially when controlling an inertia load) is decelerated quickly, the motor can act like a generator and regenerate energy back into the inverter drive. If this energy isn't dissipated through dynamic braking, the drive will trip on an over voltage trip.

A braking resistor can be fitted to the Imoticon ID700 in order to dissipate the regenerated energy.

The size of the braking resistor is dependent on braking power regenerated by the load and duty cycle (frequency the load is stopped).

NOTE: This document just gives Imoticon ID700 set up information and not braking resistor sizing information.

NOTE: The minimum braking resistor resistance should always be observed. Please see the Imoticon ID700 Easy Start Guide for details.

Imoticon ID700 Set Up

To access the advanced parameters, set P00.23 = 1.

Parameter	Description
P03.15	0: Dynamic braking disabled 1: Dynamic braking enabled (Default)

Parameter	Description
P03.16	Dynamic brake rate Range: 0.0 % to 100% Default: 50%

Only adjust with caution: The value and power of the braking resistor must be considered when setting this parameter. For the majority of applications, the default setting of 50% is adequate.

Parameter	Description
P03.17	Dynamic brake DC voltage points 230V units: 350 – 390VDC. Default: 390VDC default 400V units: 650 – 780VDC. Default: 780VDC default

Sets the voltage at which the dynamic braking will turn on.

Parameter	Description
P12.02	Deceleration over voltage prevention 0: Deceleration over voltage prevention OFF 1: Deceleration over voltage prevention ON (Default)

Set to 0 – Deceleration over voltage prevention OFF when a braking resistor is used.

For the majority of application, the default parameters settings of P03.15, P03.16 and P03.17 do not need adjusting.

P12.02 must be to be set to 0 - Deceleration over voltage prevention OFF – when a braking resistor is used.

CAUTION!

Care should be taken in the setting of parameter P03.17. It is recommended that the setting should be at least 50V higher than the maximum expected nominal level of the DC Bus voltage. If this caution is ignored, the dynamic braking may turn on continuously.

Braking resistor thermal protection

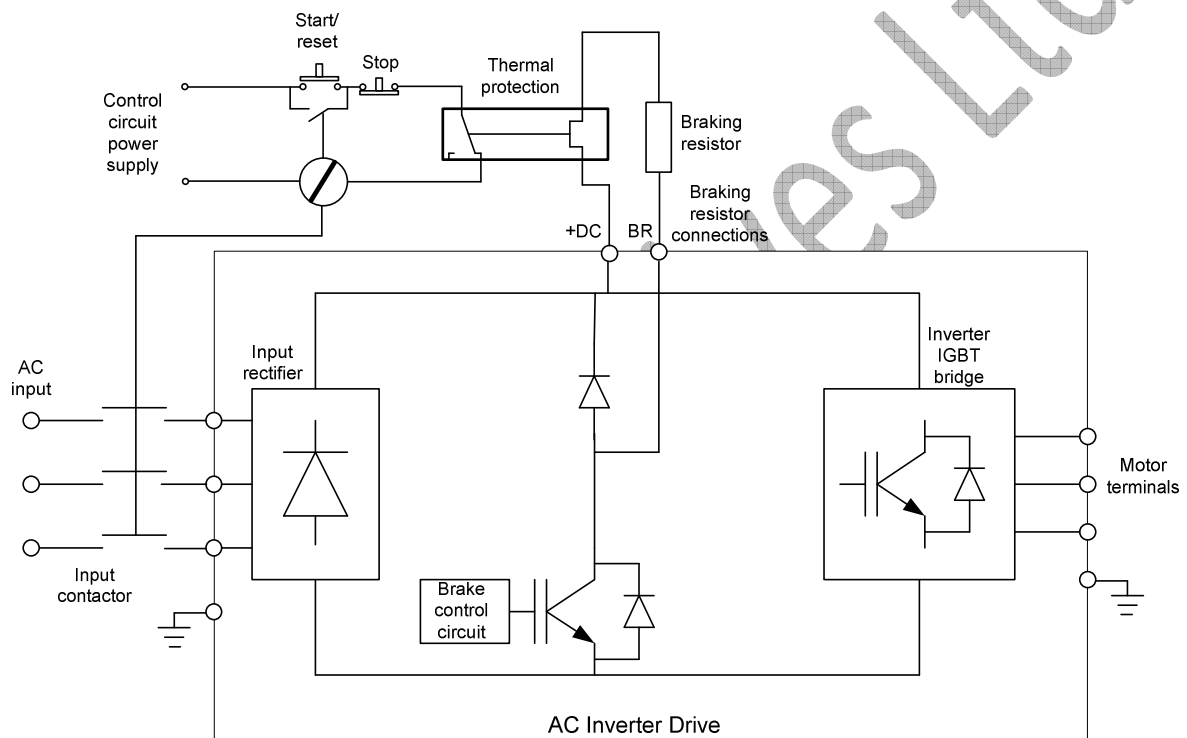
Some braking resistors do not require external braking resistor protection in the form of a thermal overload relay. Some resistors will 'fail safe' open circuit in the event of a prolonged overload or drive fault.

Some resistors must have external overload protection in the form of a thermal overload relay. The thermal overload protection must disconnect the drive from the mains supply in the event of a resistor overload or drive fault.

WARNING! Please consult the braking resistor manufacturer for advice on resistor thermal overload protection. If in doubt, fit resistor overload thermal protection.

The following diagram gives an example of a braking resistor thermal overload protection.

Example connection diagram with thermal protection



Dynamic Braking Cable Type

With small braking resistors, usually they are supplied with high temperature cables already fitted.

These small resistors tend to be mounted very close to the drive so there is no requirement to extend the cable.

These cables can be twisted together which will help with EMC and cable emissions.

If the resistors are not supplied with cables, it is recommended to use high temperature cables as the resistors can run hot and damage standard cable.

With larger resistors, these tend to be mounted further away from the inverter drive. It is recommended that with longer runs of braking resistor cables, screened cable is used. The screen should be connected to earth at the drive or to the panel backplate and connected to the braking resistor metal enclosure.

It is recommended where possible to keep the braking resistor cable away from sensitive control circuits.

Dynamic Braking Resistor Cable Length

Usually the cable length between the inverter drive and braking resistor/s is fairly short.

The maximum cable length is 10m.

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