

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
i - D -
CtL -
FUn -
FLt -
CaP -
SuP -

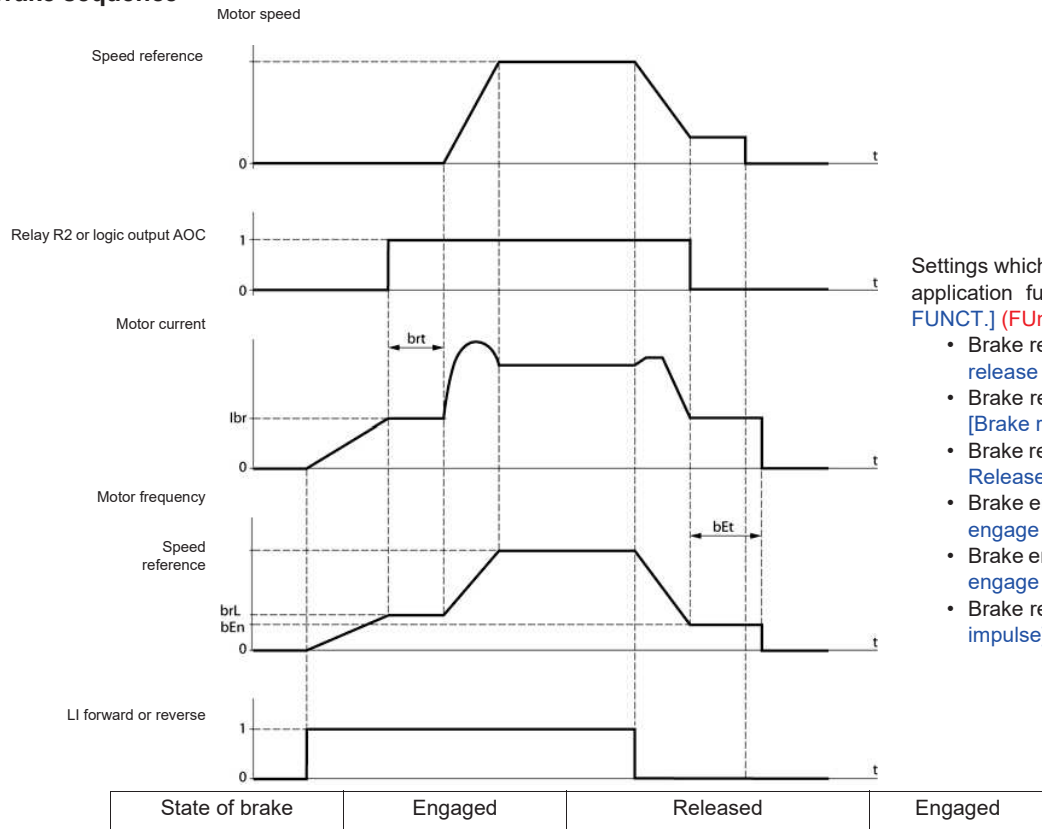
Brake control

Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3) (page 54).
This function, which can be assigned to relay R2 or logic output AOC, enables the drive to manage an electromagnetic brake.

Principle

Synchronize brake release with the build-up of torque during startup and brake engage at zero speed on stopping, to help prevent jolting.

Brake sequence



Settings which can be accessed in the application functions [APPLICATION FUNCT.] (FUn-) menu:

- Brake release frequency [Brake release freq] (brL)
- Brake release current [Brake release I FW] (lbr)
- Brake release time delay [Brake Release time] (brt)
- Brake engage frequency [Brake engage freq] (bEn)
- Brake engage time delay [Brake engage time] (bEt)
- Brake release pulse [Brake impulse] (bIP)

Recommended brake control settings:

1. [Brake release freq] (brL), page 85:
 - Horizontal movement: Set to 0.
 - Vertical movement: Set to a frequency equal to the nominal motor slip in Hz.
2. [Brake release I FW] (lbr), page 85:
 - Horizontal movement: Set to 0.
 - Vertical movement: Preset the nominal current of the motor then adjust it in order to help prevent jolting on start-up, making sure that the maximum load is held when the brake is released.
3. [Brake Release time] (brt), page 85:

Adjust according to the type of brake. It is the time required for the mechanical brake to release.
4. [Brake engage freq] (bEn), page 85:
 - Horizontal movement: Set to 0.
 - Vertical movement: Set to a frequency equal to the nominal motor slip in Hz. **Note:** Max. [Brake engage freq] (bEn) = [Low speed] (LSP); this means an appropriate value must be set in advance for [Low speed] (LSP).
5. [Brake engage time] (bEt), page 86:

Adjust according to the type of brake. It is the time required for the mechanical brake to engage.
6. [Brake impulse] (bIP), page 86:
 - Horizontal movement: Set to [No] (nO).
 - Vertical movement: Set to [Yes] (YES) and check that the motor torque direction for "run forward" control corresponds to the upward direction of the load. If necessary, reverse two motor phases. This parameter generates motor torque in an upward direction regardless of the direction of operation commanded in order to maintain the load whilst the brake is releasing.

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rEF -
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Code	Name/Description	Adjustment range	Factory setting
bLC -	<p>■ [BRAKE LOGIC CONTROL]</p> <p>Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 59. Note: This function may be incompatible with other functions (see page 21).</p>		
bLC no r2 do	<p><input type="checkbox"/> [Brake assignment]</p> <p><input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [R2] (r2): Relay R2 <input type="checkbox"/> [DO] (dO): Logic output AOC</p> <p>If [Brake assignment] (bLC) is assigned, the [Catch on the fly] (FLr) parameter, page 94, and the [Dec ramp adapt.] (brA) parameter, page 65, are forced to [No] (nO), and the [Output Phase Loss] (OPL) parameter, page 95, is forced to [Yes] (YES). [Brake assignment] (bLC) is forced to [No] (nO) if [Output Phase Loss] (OPL) = [Output cut] (OAC), page 95.</p>		[No] (nO)
brL ★	<p><input type="checkbox"/> [Brake release freq]</p> <p>Brake release frequency.</p>	0.0 to 10.0 Hz	In accordance with the drive rating
ibr ★	<p><input type="checkbox"/> [Brake release I FW]</p> <p>Brake release current threshold for ascending or forward movement. If the value of the current [brake release I FW] (ibr) is lower than that the fluxing current of the motor, an output phase disconnection may not be detected before releasing the brake and the load may drop.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> <p>⚠ WARNING</p> <p>UNEXPECTED EQUIPMENT OPERATION</p> <p>In applications involving vertical movement, the value of the current [brake release I FW] (ibr) must be set above the value of the fluxing current of the motor. If this condition is not satisfied, a drive with encoder feedback must be used.</p> <p>Failure to follow these instructions can result in death, serious injury, or equipment damage.</p> <p>The fluxing current of a motor is equal to $I_n \cdot \sqrt{1 - \cos^2 \varphi}$ with $\cos \varphi$ indicated on the nameplate of the motor.</p> </div>	0 to 1.36 In (1)	In accordance with the drive rating
brt ★	<p><input type="checkbox"/> [Brake Release time]</p> <p>Brake release time delay.</p>	0 to 5 s	0.5 s
LSP ★	<p><input type="checkbox"/> [Low speed]</p> <p>Motor frequency at min. reference. This parameter can also be changed in the [SETTINGS] (SEt-) menu, page 34.</p>	0 to HSP (page 34)	0 LSP
bEn ★ no 0 to LSP	<p><input type="checkbox"/> [Brake engage freq]</p> <p><input type="checkbox"/> Not set <input type="checkbox"/> Adjustment range in Hz</p> <p>If [Brake assignment] (bLC) is assigned and [Brake engage freq] (bEn) remains set to [No] (nO), the drive will lock in [BRAKE CONTROL FAULT] (bLF) mode on the first run command.</p>	nO - 0 to LSP	[No] (nO)

(1) In corresponds to the nominal drive current indicated in the Installation Manual and on the drive nameplate.

★ These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and set from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.

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Code	Name/Description	Adjustment range	Factory setting
bLC-	[BRAKE LOGIC CONTROL] (continued)		
bEt ★	<input type="checkbox"/> [Brake engage time] Brake engage time (brake response time).	0 to 5 s	0.5 s
bIP no YES ★	<input type="checkbox"/> [Brake impulse] <input type="checkbox"/> [No] (nO): Whilst the brake is releasing, the motor torque direction corresponds to the direction of rotation commanded. <input type="checkbox"/> [Yes] (YES): Whilst the brake is releasing, the motor torque direction is forward, regardless of the direction of operation commanded. Note: Check that the motor torque direction for "run forward" control corresponds to the upward direction of the load. If necessary, reverse two motor phases.		[No] (nO)



These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and set from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.