

ACOPOSInverter X64

Variable speed drives for
asynchronous motors

Programming Manual

Version: 0.20 (April 2011)
Model number: MAXxxxxxx-ENG



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Manual history

Version	Date	Comment
0.20	April 2011	<ul style="list-style-type: none">• Various adaptations concerning applicable I/Os• Modifications of descriptions
0.12	December 2010	Chapter: [INPUTS / OUTPUTS CFG] (I_O-) menu: added caution block
0.11	December 2010	Editorial modifications
0.10	June 2009	First edition

Important information

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, will result in death, serious injury or equipment damage.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, can result in death, serious injury or equipment damage.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, can result in injury or equipment damage.

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, can result in equipment damage.

PLEASE NOTE

The word "drive" as used in this manual refers to the "controller portion" of the adjustable speed drive as defined by NEC.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. No responsibility is assumed by B&R for any consequences arising out of the use of this documentation.

Before you begin

Read and understand these instructions before performing any procedure with this drive.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Read and understand this manual before installing or operating the ACOPOSinverter X64 drive. Installation, adjustment, repair, and maintenance must be performed by qualified personnel.
- The user is responsible for compliance with all international and national electrical code requirements with respect to grounding of all equipment.
- Many parts of this drive, including the printed circuit boards, operate at the line voltage. DO NOT TOUCH. Use only electrically insulated tools.
- DO NOT touch unshielded components or terminal strip screw connections with voltage present.
- DO NOT short across terminals PA/+ and PC/- or across the DC bus capacitors.
- Before repairing the variable speed drive:
 - Disconnect all power, including external control power that may be present.
 - Place a "DO NOT TURN ON" label on all power disconnects.
 - Lock all power disconnects in the open position.
 - WAIT 15 MINUTES to allow the DC bus capacitors to discharge.
 - Measure the voltage of the DC bus between the PA/+ and PC/- terminals to ensure that the voltage is less than 42 Vdc.
 - If the DC bus capacitors do not discharge completely, contact your local B&R office. Do not repair or operate the drive.
- Install and close all covers before applying power or starting and stopping the drive.

Failure to follow these instructions will result in death or serious injury.

DANGER

UNINTENDED EQUIPMENT OPERATION

- Read and understand this manual before installing or operating the ACOPOSinverter X64 drive.
- Any changes made to the parameter settings must be performed by qualified personnel.

Failure to follow these instructions will result in death or serious injury.

WARNING

DAMAGED EQUIPMENT

Do not install or operate any drive that appears damaged.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

Before you begin



WARNING

LOSS OF CONTROL

- The designer of any wiring diagram must take account of potential control channel failure modes and, for certain critical control functions, incorporate a way of achieving a safe state during and after a channel failure. Examples of critical control functions are emergency stop and overtravel stop.
- Separate or redundant control channels must be provided for critical control functions.
- System control paths may include communication links. Consideration must be given to the implications of unanticipated transmission delays or failures of the link. ^a

Failure to follow these instructions can result in death, serious injury, or equipment damage.

a) For additional information, refer to NEMA ICS 1.1 (latest edition), "Safety Guidelines for the Application, Installation, and Maintenance of Solid State Control" and to NEMA ICS 7.1 (latest edition), "Safety Standards for Construction and Guide for Selection, Installation and Operation of Adjustable-Speed Drive Systems".

INSTALLATION

1. Please refer to the Installation Manual.



Tips:

- Before beginning programming, complete the customer setting tables, page [106](#).
- Use the [\[Restore config.\] \(FCS\)](#) parameter, page [43](#), to return to the factory settings at any time.
- To locate the description of a function quickly, use the index of functions on page [105](#).
- Before configuring a function, read carefully the "Function compatibility" section on pages [18](#) and [19](#).
- **Note:**
The following operations must be performed for optimum drive performance in terms of accuracy and response time:
 - Enter the values indicated on the (motor) rating plate in the [\[MOTOR CONTROL\] \(drC-\)](#) menu, page [38](#).
 - Perform auto-tuning with the motor cold and connected using the [\[Auto-tuning\] \(tun\)](#) parameter, page [40](#).
 - Adjust the [\[FreqLoopGain\] \(FLG\)](#) parameter, page [30](#) and the [\[Fr.Loop.Stab\] \(StA\)](#) parameter, page [31](#).

PROGRAMMING

2. Apply input power to the drive, but do not give a run command.

3. Configure:

- The nominal frequency of the motor [\[Standard mot. freq\] \(bFr\)](#) page [38](#) if this is not 50 Hz,
- The motor parameters in the [\[MOTOR CONTROL\] \(drC-\)](#) menu, page [38](#), only if the factory configuration of the drive is not suitable,
- The application functions in the [\[INPUTS / OUTPUTS CFG\] \(I_O-\)](#) menu, page [44](#), the [\[COMMAND\] \(CtL-\)](#) menu, page [47](#), and the [\[APPLICATION FUNCT.\] \(FUn-\)](#) menu, page [59](#), only if the factory configuration of the drive is not suitable.

4. In the [\[SETTINGS\] \(SEt-\)](#) menu, adjust the following parameters:

- [\[Acceleration\] \(ACC\)](#), page [29](#) and [\[Deceleration\], \(dEC\)](#) page [29](#),
- [\[Low speed\] \(LSP\)](#), page [30](#) and [\[High speed\] \(HSP\)](#), page [30](#),
- [\[Mot. therm. current\] \(ItH\)](#), page [30](#).

5. Start the drive.

Setup - Preliminary Recommendations

Before powering up the drive

DANGER

UNINTENDED EQUIPMENT OPERATION

Make sure that all logic inputs are inactive to avoid any unintended operation.

Failure to follow these instructions will result in death or serious injury.

Before configuring the drive

DANGER

UNINTENDED EQUIPMENT OPERATION

- Read and understand this manual before installing or operating the ACOPOSinverter X64 drive.
- Any changes made to the parameter settings must be performed by qualified personnel.
- Make sure that all logic inputs are inactive to avoid any unintended operation when parameters are being changed.

Failure to follow these instructions will result in death or serious injury.

Start-up

Note: When factory settings apply and during power-up/manual reset or after a stop command, the motor can only be powered once the "forward", "reverse" and "DC injection stop" commands have been reset. If they have not been reset, the drive will display [\[Freewheel stop\] \(nSt\)](#) but will not start. If the automatic restart function has been configured ([\[Automatic restart\] \(Atr\)](#) parameter in the [\[FAULT MANAGEMENT\] \(FLt-\)](#) menu, page [87](#)), these commands are taken into account without a reset (to zero) being necessary.

Line contactor

CAUTION

RISK OF DAMAGE TO DRIVE

- Frequent use of the contactor will cause premature ageing of the filter capacitors.
- Do not have cycle times less than 60 seconds.

Failure to follow these instructions can result in equipment damage.

Using a motor with a lower rating or dispensing with a motor altogether

- With the factory settings, motor output phase loss detection is active ([\[Output Phase Loss\] \(OPL\) = \[YES\] \(YES\)](#), page [90](#)). To avoid having to use a motor with the same rating as the drive when testing the drive or during a maintenance phase, deactivate motor output phase loss detection ([\[Output Phase Loss\] \(OPL\) = \[No\] \(nO\)](#)). This can prove particularly useful if very powerful drives are being used.
- Set the [\[U/F mot 1 selected\] \(Uft\)](#) parameter, page [41](#), on [\[Cst. torque\] \(L\)](#) in the [\[MOTOR CONTROL\] \(drC-\)](#) menu.

CAUTION

RISK OF DAMAGE TO MOTOR

Motor thermal protection will not be provided by the drive if the motor's nominal current is 20% lower than that of the drive. Find an alternative source of thermal protection.

Failure to follow these instructions can result in equipment damage.

Factory configuration

Factory settings

The ACOPOSinverter X64 is factory-set for the most common operating conditions:

- Display: drive ready **[Ready]** (rdY) with motor stopped, and motor frequency with motor running.
- The AI3 analog input and R2 relay are unaffected.
- Stop mode when fault detected: freewheel

When using X2X, the following settings are changed automatically:

LAC, Fr1, Cd1, Cd2, FLOC, SA2, COd, PS2, PS4

Depending on the material number the following numbers of I/Os are available:

- 8I64*****.00X-1: LI1 to LI4, R2, dO
- 8I64*****.00C-1: LI1 to LI3, AI2, AI3, R2

Code	Description	Value	Page
b F r	[Standard mot. freq]	[50Hz IEC]	38
t t t	[2/3 wire control]	[2 wire] (2C): 2-wire control	27
U F t	[U/F mot 1 selected]	[SVC] (n): Sensorless flux vector control for constant torque applications	41
A t t D E t	[Acceleration] [Deceleration]	3.00 seconds	60
L S P	[Low speed]	0 Hz	30
H S P	[High speed]	50 Hz	30
I t H	[Mot. therm. current]	Nominal motor current (value depending on drive rating)	30
S d t I	[Auto DC inj. level 1]	0.7 x nominal drive current, for 0.5 seconds	32
S F r	[Switching freq.]	4 kHz	37
r r 5	[Reverse assign.]	[LI2] (LI2): Logic input LI2	45
P S 2	[2 preset speeds]	[LI3] (LI3): Logic input LI3	69
P S 4	[4 preset speeds]	[LI4] (LI4): Logic input LI4	69
F r I	[Ref.1 channel]	[AI1] (AI1): Not applicable	26
S A 2	[Summing ref. 2]	[AI2] (AI2): Analog input AI2	67
r I	[R1 Assignment]	[No drive fit] (FLt): Not applicable	46
b r A	[Dec ramp adapt.]	[Yes] (YES): Function active (automatic adaptation of deceleration ramp)	61
A t r	[Automatic restart]	[No] (nO): Function inactive	87
S t t	[Type of stop]	[Ramp stop] (rMP): On ramp	62
C F G	[Macro configuration]	[Factory set.] (Std) (1)	42

Check whether the values above are compatible with the application. If necessary, the drive can be used without changing the settings.

(1) If you want to keep the drive's presettings to a minimum, select the macro configuration **[Macro configuration]** (CFG) = **[Start/stop]** (StS) followed by **[Restore config.]** (FCS) = **[Config. CFG]** (InI) (page [43](#)).

The **[Start/stop]** (StS) macro configuration is the same as the factory configuration, apart from the I/O assignment:

- Logic inputs:
 - LI1, LI2 (reversing): 2-wire transition detection control, LI1 = run forward, LI2 = run reverse
 - LI3 to LI4: Inactive (not assigned)
- Analog inputs:
 - AI1: Not applicable
 - AI2, AI3: Inactive (not assigned)
- Relay R1: Not applicable
- Relay R2: Inactive (not assigned)
- Analog output AOC: Not applicable

Basic functions

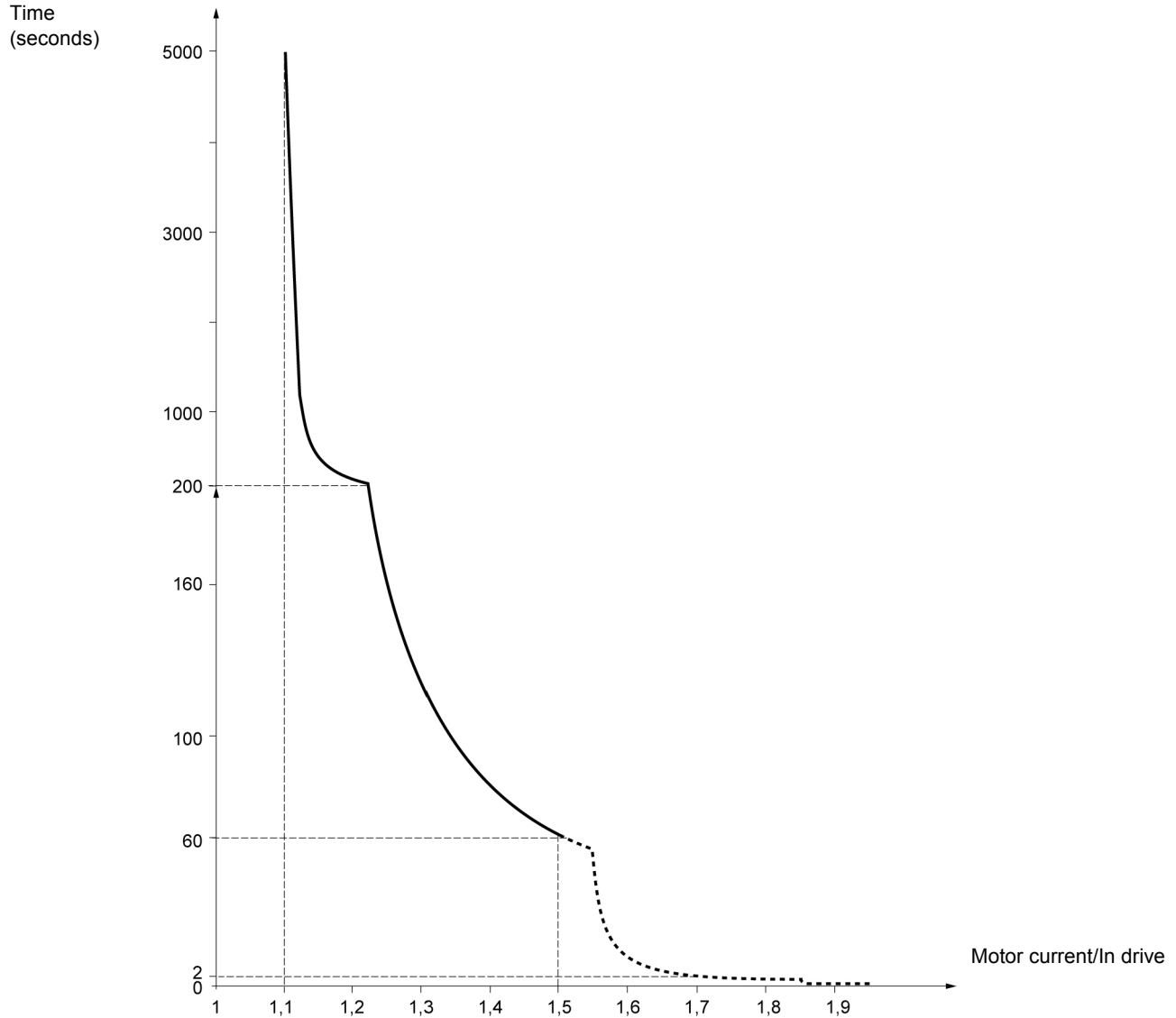
Drive thermal protection

Functions:

Thermal protection by PTC probe fitted on the heatsink or integrated in the power module.

Indirect protection of the drive against overloads by tripping in the event of an overcurrent. Typical tripping values:

- Motor current = 185% of nominal drive current: 2 seconds
- Motor current = 150% of nominal drive current: 60 seconds



Drive ventilation

The fan starts up when the drive is powered up then shuts down after 10 seconds if a run command has not been received.

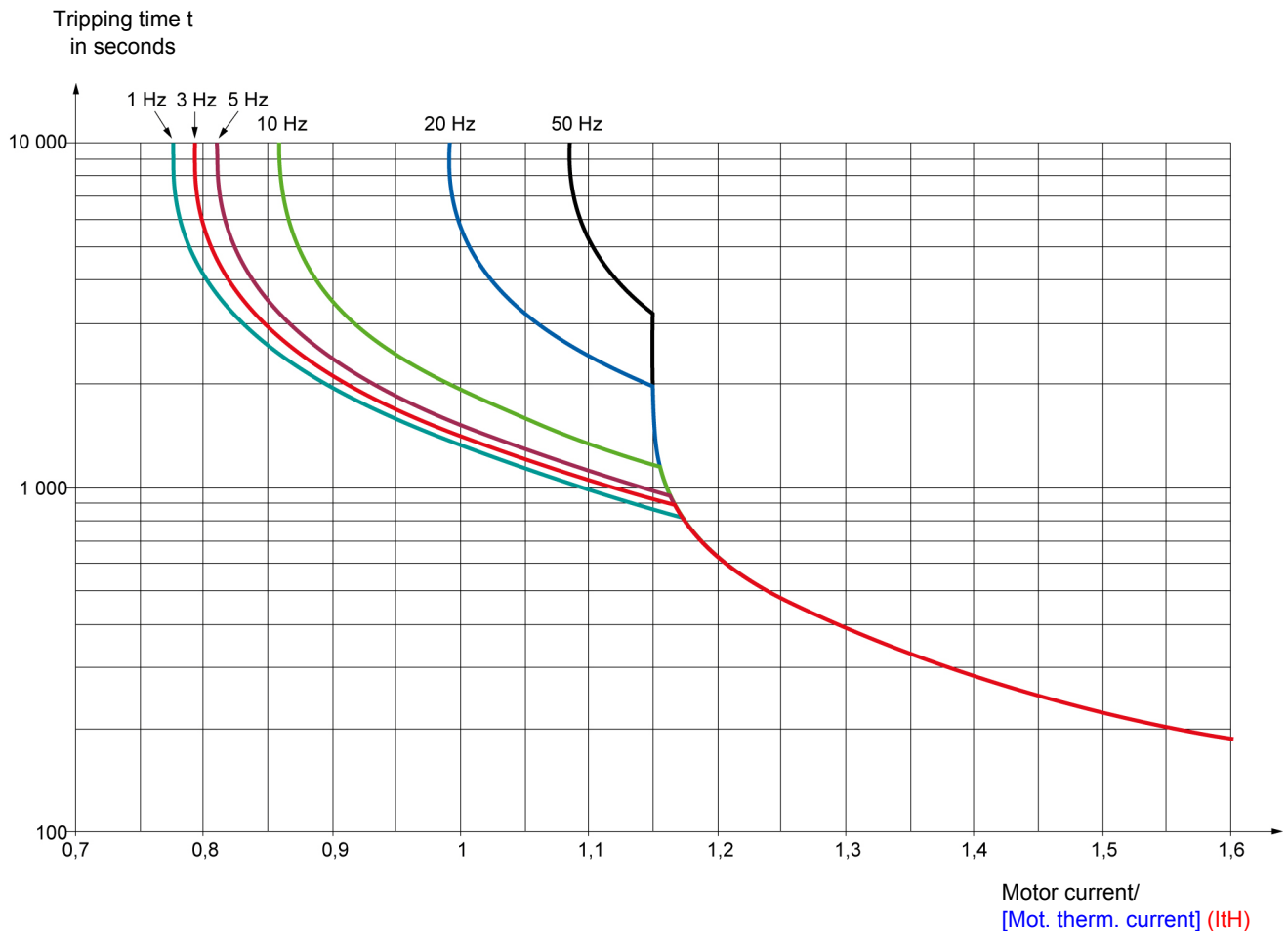
The fan is powered automatically when the drive is unlocked (direction of operation + reference). It is powered down a few seconds after the drive is locked (motor speed < 0.2 Hz and injection braking completed).

Basic functions

Motor thermal protection

Function:

Thermal protection by calculating the I^2t .
The protection takes account of self-cooled motors.



CAUTION

RISK OF DAMAGE TO MOTOR

External protection against overloads is required under the following circumstances:

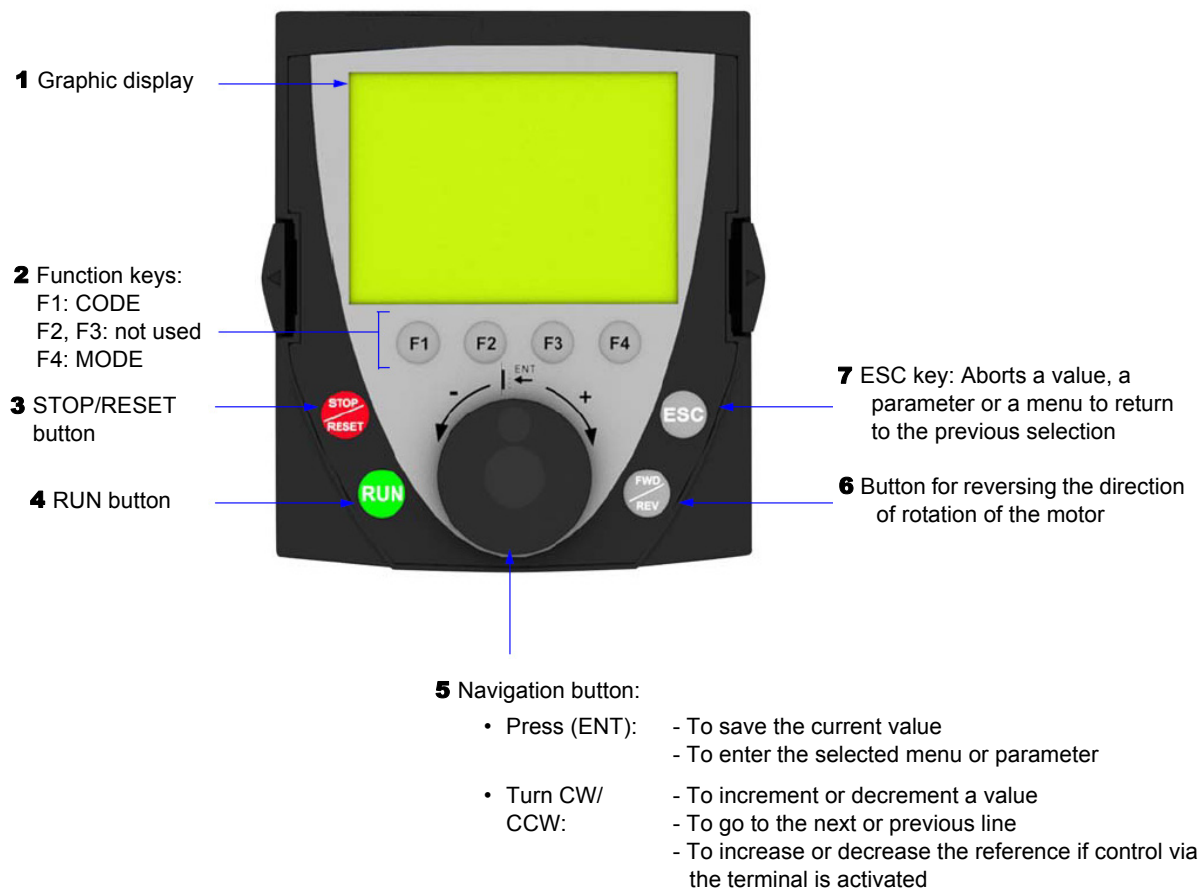
- When the product is being switched on again, as there is no memory to record the motor thermal state
- When supplying more than one motor
- When supplying motors with ratings less than 0.2 times the nominal drive current
- When using motor switching

Failure to follow these instructions can result in equipment damage.

Graphic display terminal

Although the graphic display terminal is optional (see catalog). The graphic display terminal can be disconnected and connected remotely (on the door of an enclosure for example) using the cables and accessories available as options (see catalog).

Description of terminal



Note: Buttons 3, 4, 5 and 6 can be used to control the drive directly, if control via the terminal is activated.

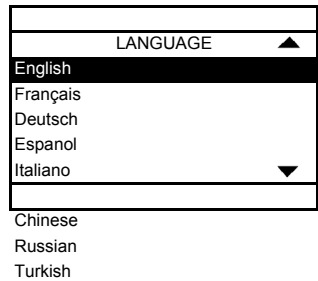
To activate the buttons on the remote display terminal, you first have to configure [HMI command] (LCC) = [Yes] (YES), page 58.

Graphic display terminal

Powering up the graphic display terminal for the first time

Note: When the ACOPOSinverter X64 gets configured with the Automation Studio, the display is locked per default setting. Under monitoring (pin code 1), the display could get unlocked with the entered code in the Automation Studio (default 64).

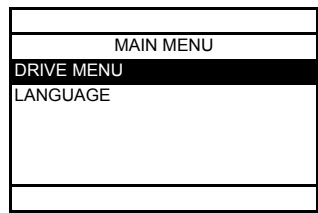
When powering up the graphic display terminal for the first time, the user has to select the required language.



Display after the graphic display terminal has been powered up for the first time. Select the language and press ENT.

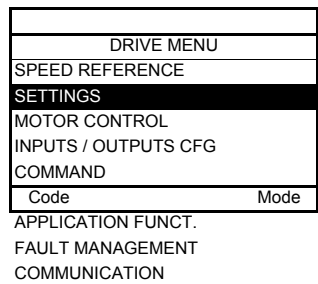


The drive's rating details will now appear.



The [\[MAIN MENU\]](#) follows automatically.

3 seconds
or ENT



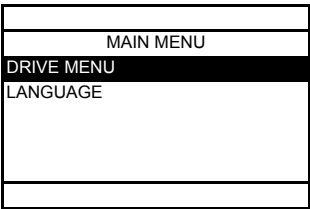
Automatically switches to the [\[DRIVE MENU\]](#) menu after 3 seconds. Select the menu and press ENT.

Powering up the drive for the first time

When powering up the drive for the first time, the user immediately accesses the 3 parameters below: [Standard mot. freq] (bFr), [Ref.1 channel] (Fr1), and [2/3 wire control] (tCC), page 27.

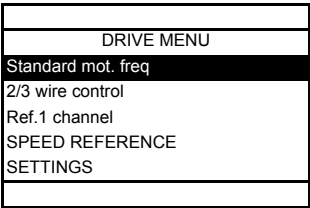


Display after the drive has been powered up for the first time.



The [MAIN MENU] follows automatically.

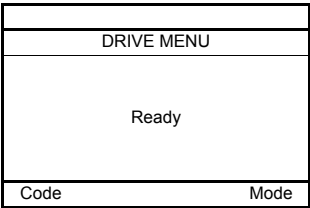
3 seconds



Automatically switches to the [DRIVE MENU] menu after 3 seconds. Select the menu and press ENT.

MOTOR CONTROL
INPUTS / OUTPUTS CFG
COMMAND
APPLICATION FUNCT.
FAULT MANAGEMENT
COMMUNICATION

ESC

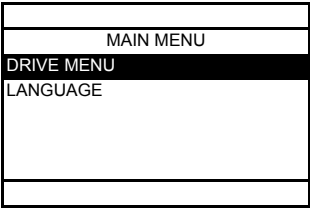


The word "Ready" appears on the graphic display terminal if you press the ESC key when in the [DRIVE MENU].

Subsequent power-ups

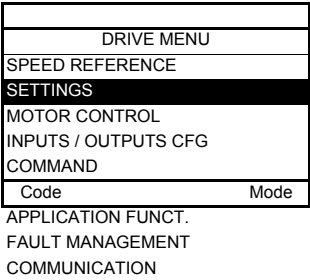


Display after powering up.



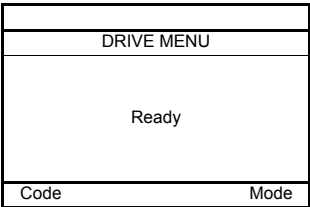
The [\[MAIN MENU\]](#) follows automatically.

3 seconds



Automatically switches to the [\[DRIVE MENU\]](#) menu after 3 seconds.
Select the menu and press ENT.

ESC

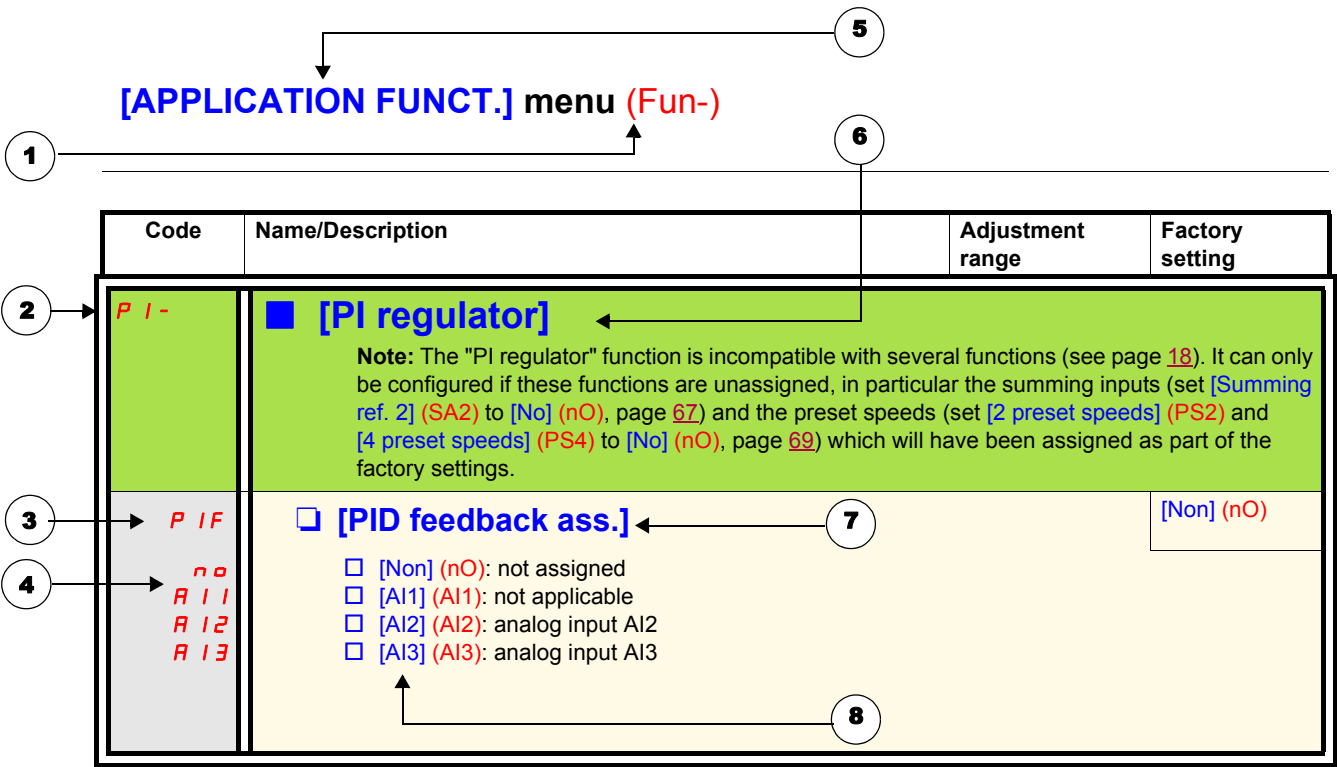


The word "Ready" appears on the graphic display terminal if you press the ESC key when in the [\[DRIVE MENU\]](#).

Structure of the parameter tables

The parameter tables contained in the descriptions of the various menus are organized as follows.

Example :



1. Name of menu on 4-digit 7-segment display

2. Submenu code on 4-digit 7-segment display

3. Parameter code on 4-digit 7-segment display

4. Parameter value on 4-digit 7-segment display

5. Name of menu in B&R Automation Studio and graphic display terminal
6. Name of submenu in B&R Automation Studio and graphic display terminal

7. Name of parameter in B&R Automation Studio and graphic display terminal

8. Value of parameter in B&R Automation Studio and graphic display terminal

Compatibility of functions

Incompatible functions

The following functions will be inaccessible or deactivated in the cases described below:

Automatic restart

This is only possible for the 2-wire level control type ([2/3 wire control] (tCC) = [2 wire] (2C) and [2 wire type] (tCt) = [Level] (LEL) or [Fwd priority] (PFO)).

Catch on the fly

This is only possible for the 2-wire level control type ([2/3 wire control] (tCC) = [2 wire] (2C) and [2 wire type] (tCt) = [Level] (LEL) or [Fwd priority] (PFO)).

This function is locked if automatic standstill injection has been configured as DC ([Auto DC injection] (AdC) = [Continuous] (Ct)).

Function compatibility table

The choice of application functions may be limited by the number of I/O and by the fact that some functions are incompatible with one another. Functions which are not listed in this table are compatible.

If there is an incompatibility between functions, the first function configured will prevent the others being configured.

To configure a function, first check that functions which are incompatible with it are unassigned, especially those which are assigned in the factory settings.

	Summing inputs (factory setting)	+/- speed (1)	Management of limit switches	Preset speeds (factory setting)	PI regulator	Jog operation	Brake control	DC injection stop	Fast stop	Freewheel stop
Summing inputs (factory setting)	●			↑	●	↑				
+/- speed (1)	●	●		●	●	●				
Management of limit switches			●		●					
Preset speeds (factory setting)	↑	●		●	●	↑				
PI regulator	●	●	●	●	●	●	●			
Jog operation	↑	●		↑	●	●	●			
Brake control					●	●	●	●		
DC injection stop							●	●		↑
Fast stop									●	↑
Freewheel stop								↑	↑	●

(1)Excluding special application with reference channel [Ref.2 channel] (Fr2) (see diagrams 50 and 52)

● Incompatible functions □ Compatible functions ■ Not applicable

Priority functions (functions which cannot be active at the same time):

← ↑ The function marked with the arrow takes priority over the other.

Stop functions take priority over run commands.

Speed references via logic command take priority over analog references.

Compatibility of functions

Logic and analog input application functions

Each of the functions on the following pages can be assigned to one of the inputs.

A single input can activate several functions at the same time (reverse and 2nd ramp for example). **The user must therefore ensure that these functions can be used at the same time.**

The [\[MONITORING\] \(SUP-\)](#) menu ([\[\[LOGIC INPUT CONF.\]\] \(LIA-\)](#) parameter, page [100](#), and [\[\[ANALOG INPUTS IMAGE\]\] \(AIA-\)](#) parameter, page [100](#)) can be used to display the functions assigned to each input in order to check their compatibility.

Before assigning a reference, command or function to a logic or analog input, the user must check that this input has not already been assigned in the factory settings and that no other input has been assigned to an incompatible or unwanted function.

- Example of incompatible function to be unassigned:
In order to use the "+speed/-speed" function, the preset speeds and summing input 2 must first be unassigned.

The table below lists the factory-set input assignments and the procedure for unassigning them.

Assigned input	Function	Code	To unassign, set to:	Page
LI2	Run reverse	<i>r r 5</i>	nO	45
LI3	2 preset speeds	<i>P 5 2</i>	nO	69
LI4	4 preset speeds	<i>P 5 4</i>	nO	69
AI1	not applicable	<i>F r 1</i>	not applicable	55
LI1	Run forward	<i>t t t</i>	2C or 3C	44
AI2	Summing input 2	<i>S A 2</i>	nO	67

List of functions that can be assigned to inputs/outputs

Logic inputs	Page	Code	Factory setting
Run forward	-	-	LI1
2 preset speeds	69	<i>P S 2</i>	LI3
4 preset speeds	69	<i>P S 4</i>	LI4
8 preset speeds	69	<i>P S 8</i>	
16 preset speeds	70	<i>P S 16</i>	
2 preset PI references	77	<i>P r 2</i>	
4 preset PI references	78	<i>P r 4</i>	
+ speed	74	<i>U S P</i>	
- speed	74	<i>d S P</i>	
Jog operation	72	<i>J O G</i>	
Ramp switching	61	<i>r P S</i>	
2nd current limit switching	82	<i>L C 2</i>	
Fast stop via logic input	62	<i>F S t</i>	
DC injection via logic input	63	<i>d C I</i>	
Freewheel stop via logic input	64	<i>n S t</i>	
Run reverse	45	<i>r r S</i>	LI2
External fault	89	<i>E t F</i>	
RESET	88	<i>r S F</i>	
Forced local mode	95	<i>F L D</i>	
Reference switching	56	<i>r F C</i>	
Control channel switching	57	<i>C C S</i>	
Motor switching	83	<i>C H P</i>	
Forward limit switch	85	<i>L A F</i>	
Reverse limit switch	85	<i>L A r</i>	
Fault inhibition	92	<i>I n H</i>	

Analog inputs	Page	Code	Factory setting
Not assigned	-	-	AI3
Reference 1	55	<i>F r 1</i>	AI1
Reference 2	55	<i>F r 2</i>	
Summing input 2	67	<i>S A 2</i>	AI2
Summing input 3	67	<i>S A 3</i>	
PI regulator feedback	77	<i>P I F</i>	

List of functions that can be assigned to inputs/outputs

Analog/logic output	Page	Code	Factory setting
Not assigned	-	-	dO
Motor current	45	<i>D C r</i>	
Motor frequency	45	<i>D F r</i>	
Motor torque	45	<i>D t r</i>	
Power supplied by the drive	45	<i>D P r</i>	
Drive detected fault (logic data)	45	<i>F L t</i>	
Drive running (logic data)	45	<i>r U n</i>	
Frequency threshold reached (logic data)	45	<i>F t A</i>	
High speed (HSP) reached (logic data)	45	<i>F L A</i>	
Current threshold reached (logic data)	45	<i>C t A</i>	
Frequency reference reached (logic data)	45	<i>S r A</i>	
Motor thermal threshold reached (logic data)	45	<i>t S A</i>	
Brake sequence (logic data)	45	<i>b L C</i>	

Relay	Page	Code	Factory setting
Not assigned	-	-	R2
Detected fault	46	<i>F L t</i>	R1
Drive running	46	<i>r U n</i>	
Frequency threshold reached	46	<i>F t A</i>	
High speed (HSP) reached	46	<i>F L A</i>	
Current threshold reached	46	<i>C t A</i>	
Frequency reference reached	46	<i>S r A</i>	
Motor thermal threshold reached	46	<i>t S A</i>	
Brake sequence	46	<i>b L C</i>	
Copy of the logic input	46	<i>L 1 1</i> to <i>L 1 4</i>	

List of functions that can be assigned to the Network control word bits

Bits 11 to 15 of the control word	Page	Code
2 preset speeds	69	<i>PS2</i>
4 preset speeds	69	<i>PS4</i>
8 preset speeds	69	<i>PS8</i>
16 preset speeds	70	<i>PS16</i>
2 preset PI references	77	<i>Pr2</i>
4 preset PI references	78	<i>Pr4</i>
Ramp switching	61	<i>rPS</i>
2nd current limit switching	82	<i>LC2</i>
Fast stop via logic input	62	<i>FSt</i>
DC injection	63	<i>dCI</i>
External fault	89	<i>EEF</i>
Reference switching	56	<i>rFC</i>
Control channel switching	57	<i>CCS</i>
Motor switching	83	<i>CHP</i>

Checklist

Carefully read the information contained in the programming and installation manuals, as well as the information in the catalogue. Before starting to use the drive, please check the following points relating to mechanical and electrical installations. For the full range of documentation, please visit www.br-automation.com.

1. Mechanical installation (see installation manual)

- For details of the different installation types and recommendations concerning ambient temperature, please refer to the installation instructions in the installation manual.
- Install the drive vertically in accordance with the specifications. Please refer to the installation instructions in the installation manual.
- When using the drive, both the environmental conditions defined under standard 60721-3-3 and the levels defined in the catalogue must be respected.
- Install the required options for your application. Refer to the catalogue for details.

2. Electrical installation (see installation manual)

- Ground the drive. See the sections on how to ground equipment in the installation manual.
- Make sure the input supply voltage matches the nominal drive voltage and connect the line supply in accordance with the installation manual.
- Make sure you use appropriate input line fuses and circuit breakers. See installation manual.
- Arrange the cables for the control terminals as required (see installation manual). Separate the supply and control cables in accordance with EMC compatibility rules.
- The 8I64S2****.00X-1 and 8I64T4****.00X-1 ranges include an EMC filter. Using an IT jumper helps reduce leakage current. This is explained in the paragraph about the internal EMC filter on the 8I64S2****.00X-1 and the 8I64T4****.00X-1 in the installation manual.
- Make sure the motor connections are right for the voltage (star, delta).

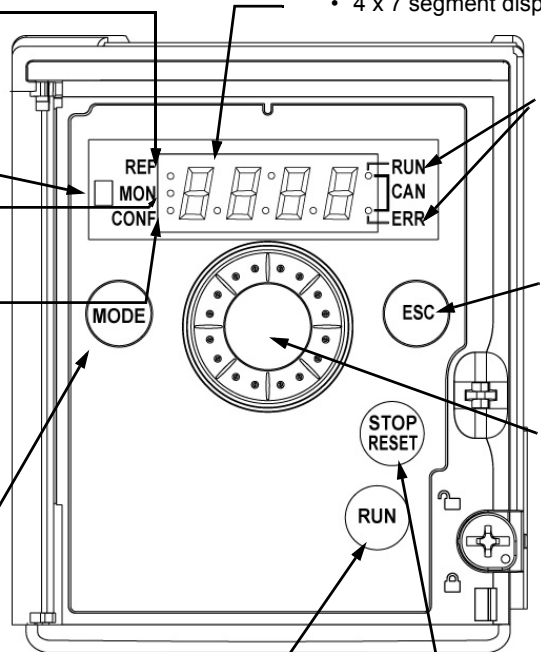

3. Using and starting up the drive

- Start the drive. [\[Standard mot. freq\] \(bFr\)](#), page [26](#), is displayed the first time the drive is powered up. Make sure the frequency defined by frequency [bFr](#) (the factory setting is 50 Hz) matches the motor's frequency.
- When the drive is powered up for the first time, the [\[Ref.1 channel\] \(Fr1\)](#) parameter, page [26](#), and the [\[2/3 wire control\] \(tCC\)](#) parameter, page [27](#), are displayed after [\[Standard mot. freq\] \(bFr\)](#). These parameters will need to be adjusted if you wish to control the drive locally.
- When the drive is powered up subsequently, [\[Ready\] \(rdY\)](#) is displayed on the HMI.
- The [\[Restore config.\] \(FCS\)](#) function, page [43](#), is used to reinitialize the drive with the factory settings.

Programming

Description of the HMI

Functions of the display and the keys

- 
- The diagram shows the HMI control panel with the following components and functions:
- REF LED, illuminated if **[SPEED REFERENCE] (rEF-)** menu is active
 - Load LED
 - MON LED, illuminated if **[MONITORING] (SUP-)** menu is active.
 - CONF LED, illuminated if the **[SETTINGS] (SEt-)**, **[MOTOR CONTROL] (drC-)**, **[INPUTS / OUTPUTS CFG] (I_O-)**, **[COMMAND] (CtL-)**, **[APPLICATION FUNCT] (FUn-)**, **[FAULT MANAGEMENT] (FLt-)** or **[COMMUNICATION] (COM-)** menus are active.
 - MODE button (1): 3s press on MODE button switches between the REMOTE/LOCAL configurations. If **[SPEED REFERENCE] (rEF-)** is displayed, this will take you to the **[SETTINGS] (SEt-)** menu. If not, it will take you to the **[SPEED REFERENCE] (rEF-)** menu.
 - RUN button: Controls powering up of the motor for forward running in LOCAL configuration and in REMOTE configuration if the **[2/3 wire control] (tCC)** parameter in the **[INPUTS / OUTPUTS CFG] (I_O-)** menu is set to **[Local] (LOC)**, page 44. (could be hidden by door if function disabled)
 - STOP/RESET button
 - Enables detected fault to be reset
 - Can be used to control motor stopping
 - If **[2/3 wire control] (tCC)** is not set to **[Local] (LOC)**, freewheel stop
 - If **[2/3 wire control] (tCC)** is set to **[Local] (LOC)**, stop on ramp or freewheel stop during DC injection braking.
 - 4 x 7 segment display
 - Status LEDs of integrated communication interface
 - Used to quit a menu or parameter or to clear the value displayed in order to revert to the value in the memory.
 - In LOCAL configuration, 2s press on ESC button switches between the control/programming modes
 - Jog dial - can be used for navigation by turning it clockwise or counter-clockwise - pressing the jog dial enables the user to make a selection or confirm information.  = ENT
- Functions as a potentiometer in LOCAL configuration and in REMOTE configuration if **[Ref.1 channel] (Fr1-)** in the **[COMMAND] (CtL-)** menu is set to **[Image input AIV1] (AIV1)**.

Note 1: In LOCAL configuration, the three LEDs REF, MON and CONF are blinking simultaneously in programming mode and are working as a LED chaser in control mode.

Normal display, with no fault code displayed and no startup:

- **4 3.0**: Displays the parameter selected in the **[MONITORING] (SUP-)** menu (default: motor frequency). If the current is limited, the display flashes. In such cases, CLI will appear at the top left if a graphic display terminal is connected to the drive.
- **1 n 1 t**: Initialization sequence
- **r d y**: Drive ready
- **d C b**: DC injection braking in progress
- **n 5 t**: Freewheel stop
- **F 5 t**: Fast stop
- **t U n**: Auto-tuning in progress

In the event of a detected fault, the display will flash to notify the user accordingly. If a graphic display terminal is connected, the name of the detected fault will be displayed.

(1) If the drive is locked by a code (**[PIN code 1] (COd)**, page 99), pressing the Mode key enables you to switch from the **[MONITORING] (SUP-)** menu to the **[SPEED REFERENCE] (rEF-)** menu and vice versa. It is no longer possible to switch between LOCAL and REMOTE configurations.

REMOTE and LOCAL configuration

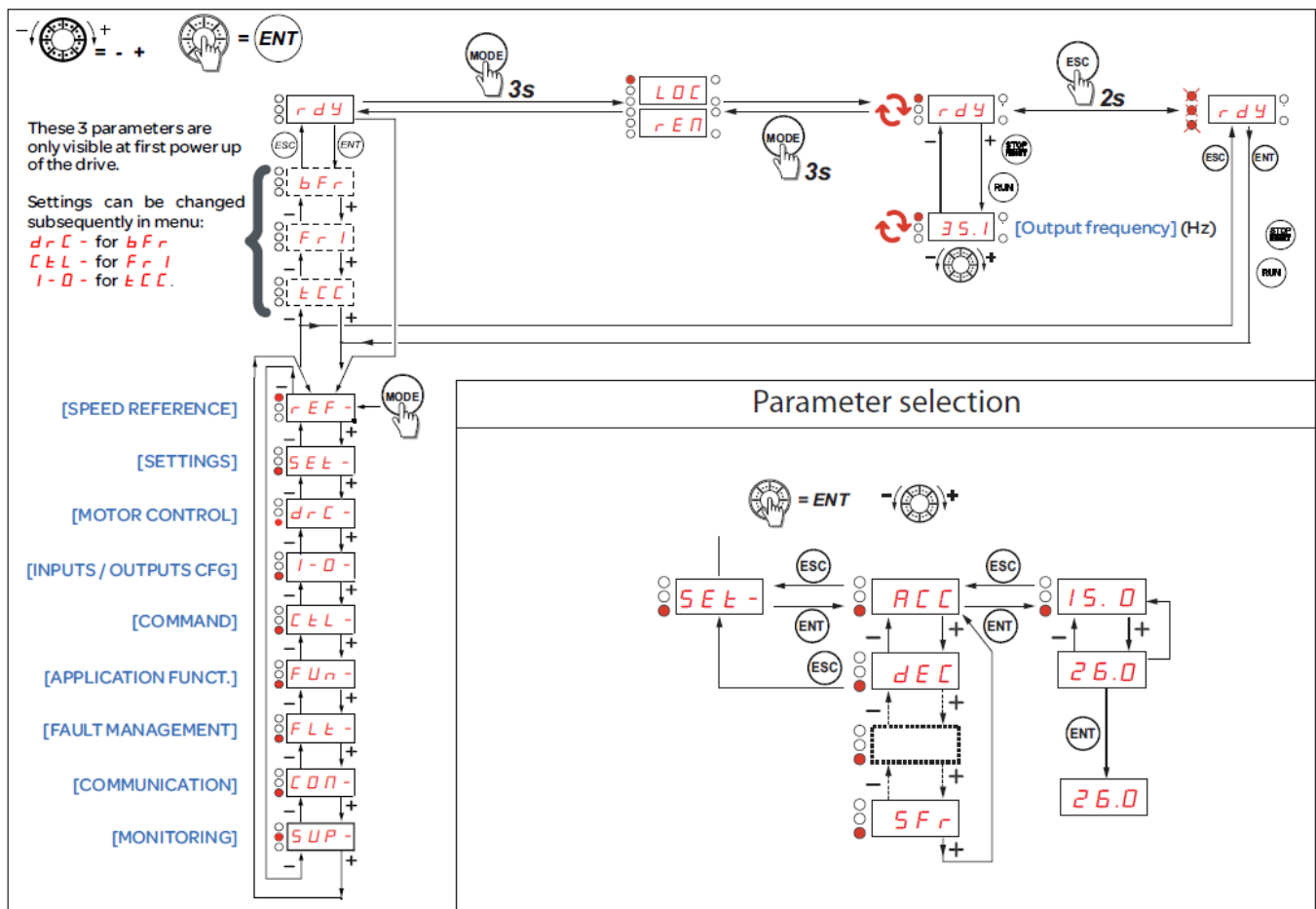
The LOCAL configuration allows to activate automatically the embedded RUN button and the jog dial as a potentiometer. In that configuration, the speed adjustment will also be effective on remote keypads. MODE button on the remote display terminal and on the graphic display terminal (function key F4) is also active to switch from one configuration to another.

[Ref.1 channel] (Fr1) is set to [AI Virtual 1] (AIV1) and [2/3 wire control] (tCC) are set to [2 wire] (2C) when switching to LOCAL configuration.

For parameters interdependencies reasons, switching from one configuration to another will change other parameters (for example : Input/Output assignment will return to their factory value).

Choose the configuration (REMOTE or LOCAL) before starting the parameters adjustment of the drive.

Structure of the menus



On the 7-segment display, a dash after menu and submenu codes is used to differentiate them from parameter codes.

Examples: [APPLICATION FUNCT.] (FUn-) menu, [Acceleration] (ACC) parameter

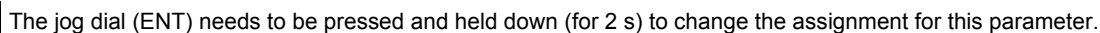
Programming

Configuring the [Standard mot. freq] (bFr), [2/3 wire control] (tCC), and [Ref.1 channel] (FrI) parameters

These parameters can only be modified when the drive is stopped and no run command is present.

Code	Description	Adjustment range	Factory setting
bFr 50 60	<input type="checkbox"/> [Standard mot. freq] This parameter is only visible the first time the drive is powered up. It can be modified at any time in the [MOTOR CONTROL] (drC-) menu. [50Hz IEC] (50): 50 Hz [60Hz NEMA] (60): 60 Hz This parameter modifies the presets of the following parameters: [High speed] (HSP), page 30, [Freq. threshold] (Ftd), page 36, [Rated motor freq.] (FrS), page 38, and [Max frequency] (tFr), page 41		[50Hz IEC] (50)
FrI AI1 AI2 AI3 AI Virtual 1 UPdt UPdH LCC Mdb nEt	<input type="checkbox"/> [Ref.1 channel] <input type="checkbox"/> [AI1] (AI1) - Not applicable <input type="checkbox"/> [AI2] (AI2) - Analog input AI2 <input type="checkbox"/> [AI3] (AI3) - Analog input AI3 <input type="checkbox"/> [AI Virtual 1] (AIV1) - In terminal control mode, the jog dial functions as a potentiometer. If [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), the following additional assignments are possible: <input type="checkbox"/> [+/- SPEED] (UPdt): +/- speed reference via LI. See configuration page 74. <input type="checkbox"/> [+/-spd HMI] (UPdH): +/- speed reference by turning the jog dial on the ACOPOSinverter X64 keypad. To use, display the frequency [Output frequency] (rFr), page 97. The +/- speed function via the keypad or the terminal is controlled from the [MONITORING] (SUP-) menu by selecting the [Output frequency] (rFr) parameter. If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following additional assignments are possible: <input type="checkbox"/> [HMI] (LCC): reference via the remote display terminal, [HMI Frequency ref.] (LFr) parameter in the [SETTINGS] (SEt-) menu, page 28. <input type="checkbox"/> [Modbus] (Mdb): Not applicable <input type="checkbox"/> [Com. card] (nEt): Reference via integrated communication interface		[AI1] (AI1) (1)

(1) When using X2X, the factory setting is changed automatically to [Com. card] (nEt).



[SPEED REFERENCE] (rEF-) menu

rEF -

SEt -

The [SPEED REFERENCE] (rEF-) menu displays [HMI Frequency ref.] (LFr), [Image input AIV1] (AIV1) or [Frequency ref.] (FrH) depending on which control channel is active.

drC -

I_D -

During local control, the HMI's jog dial functions as a potentiometer, making it possible to increase or reduce the reference value within limits defined by the [Low speed] (LSP) and [High speed] (HSP) parameters.

CEt -

FUn -

When local control is deactivated, by the [Ref.1 channel] (Fr1) parameter, only the reference values are displayed. The value will be read-only and can only be changed via the jog dial (the speed reference is supplied by an AI or another source).

FLt -

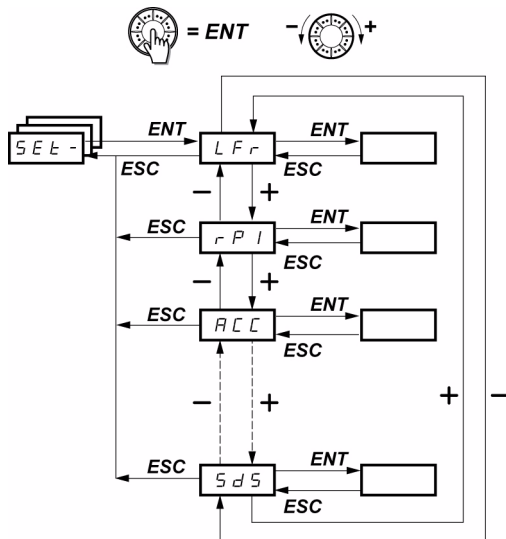
CON -

The reference displayed will depend on how the drive has been configured.

SUP -

Code	Description	Adjustment range
LFr	<input type="checkbox"/> [HMI Frequency ref.] This parameter only appears if the function has been enabled. It is used to change the speed reference from the remote control. ENT does not have to be pressed to enable a change of reference.	0 to 500 Hz
AIV1	<input type="checkbox"/> [Image input AIV1] Used to amend the speed reference via the jog dial	0 to 100%
FrH	<input type="checkbox"/> [Frequency ref.] This parameter is read-only. It enables you to display the speed reference applied to the motor, regardless of which reference channel has been selected.	LSP to HSP Hz

[SETTINGS] (SEt-) menu



Scaling factor for the [Cust. output value] (SPd1) parameter

The adjustment parameters can be modified with the drive running or stopped.

Note: Changes should preferably be made with the drive stopped.

Code	Description	Adjustment range	Factory setting
LFr ★	<input type="checkbox"/> [HMI Frequency ref.] This parameter is displayed if [HMI command] (LCC) = [Yes] (YES), page 58 or if [Ref.1 channel] (Fr1)/[Ref.2 channel] (Fr2) = [HMI] (LCC) page 55, and if a remote display terminal is connected. In such cases, [HMI Frequency ref.] (LFr) can also be accessed via the drive's keypad. [HMI Frequency ref.] (LFr) is reinitialized to 0 when power is switched off.	0 to HSP	-
rP1 ★	<input type="checkbox"/> [Internal PID ref.] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77.	0.0 to 100%	0%
ACC	<input type="checkbox"/> [Acceleration] Defined to accelerate from 0 to the nominal frequency [Rated motor freq.] (FrS) in the [MOTOR CONTROL] (drC-) menu.	In accordance with <i>Inr</i> , page 60	3 s
AC2 ★	<input type="checkbox"/> [Acceleration 2] Parameter can be accessed if [Ramp 2 threshold] (Frt) > 0, page 61, or if [Ramp switch ass.] (rPS) is assigned, page 61.	In accordance with <i>Inr</i> , page 60	5 s
DE2 ★	<input type="checkbox"/> [Deceleration 2] Parameter can be accessed if [Ramp 2 threshold] (Frt) > 0, page 61, or if [Ramp switch ass.] (rPS) is assigned, page 61.	In accordance with <i>Inr</i> , page 60	5 s
dEC	<input type="checkbox"/> [Deceleration] Defined to decelerate from the nominal frequency [Rated motor freq.] (FrS) (parameter in the [MOTOR CONTROL] (drC-) menu) to 0. Check that the value for [Deceleration] (dEC) is not too low in relation to the load to be stopped.	In accordance with <i>Inr</i> , page 60	3 s



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.

[SETTINGS] (SEt-) menu

rEF-

SEt-

drC-

l_D-

CtL-

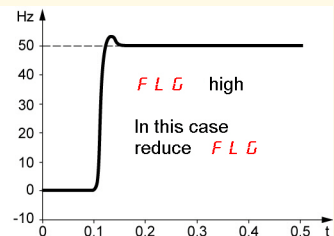
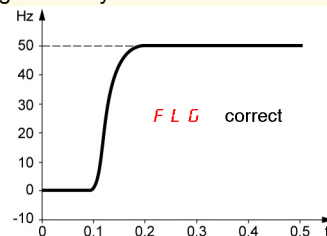
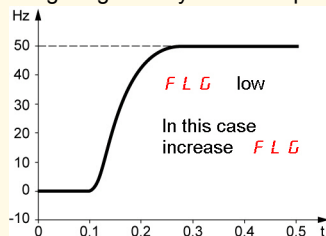
FUn-

FLt-

COn-

SUP-

Code	Description	Adjustment range	Factory setting
EA1 ★	<input type="checkbox"/> [Begin Acc round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to 100	10
EA2 ★	<input type="checkbox"/> [End Acc round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to (100-tA1)	10
EA3 ★	<input type="checkbox"/> [Begin Dec round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to 100	10
EA4 ★	<input type="checkbox"/> [End Dec round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to (100-tA3)	10
LSP	<input type="checkbox"/> [Low speed] Motor frequency at min. reference	0 to HSP	0
HSP	<input type="checkbox"/> [High speed] Motor frequency at max. reference. Ensure that this setting is appropriate for the motor and the application.	LSP to tFr	bFr
lEH	<input type="checkbox"/> [Mot. therm. current] Set [Mot. therm. current] (lEH) to the nominal current indicated on the motor's rating plate. If you wish to suppress thermal protection, see [Overload fault mgt] (OLL), page 90.	0.2 to 1.5 In (1)	In accordance with the drive rating
UFr	<input type="checkbox"/> [IR compensation] - For [U/F mot 1 selected] (UFt) = [SVC] (n) or [Energy sav.] (nLd), page 41: IR compensation - For [U/F mot 1 selected] (UFt) = [Cst. torque] (L) or [Var. torque] (P), page 41: Voltage boost Used to optimize the torque at very low speed (increase [IR compensation] (UFr) if the torque is insufficient). Check that the value for [IR compensation] (UFr) is not too high when the motor is in a hot state otherwise some instabilities can occur. Note: Changing [U/F mot 1 selected] (UFt), page 41, will cause [IR compensation] (UFr) to return to its factory setting (20%).	0 to 100%	20%
FLG ★	<input type="checkbox"/> [FreqLoopGain] Parameter can only be accessed if [U/F mot 1 selected] (UFt) = [SVC] (n) or [Energy sav.] (nLd), page 41. The FLG parameter adjusts the drive's ability to follow the speed ramp on the basis of the inertia of the machine being driven. Too high a gain may result in operating instability.	1 to 100%	20%



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

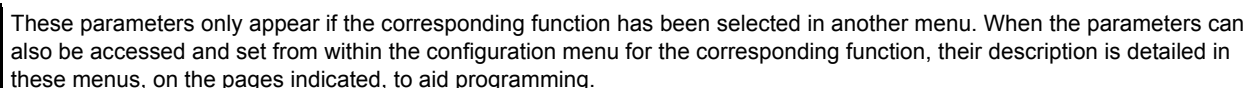


These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and set from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.

- F F -

SEt -
drC -
I - D -
CtL -
FUn -
FLt -
CON -
SUP -

(2) **Note:** These settings are not related to the "automatic standstill DC injection" function.



[SETTINGS] (SEt-) menu

Code	Description	Adjustment range	Factory setting
EdC 1 ★	<input type="checkbox"/> [Auto DC inj. time 1] Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65. <div> CAUTION RISK OF DAMAGE TO THE MOTOR <ul style="list-style-type: none"> Long periods of DC injection braking can cause overheating and damage the motor. Protect the motor by avoiding long periods of DC injection braking. Failure to follow these instructions can result in equipment damage. </div>	0.1 to 30 s	0.5 s
SDC 1 ★	<input type="checkbox"/> [Auto DC inj. level 1] Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65. <div> CAUTION RISK OF DAMAGE TO THE MOTOR <ul style="list-style-type: none"> Check that the motor will withstand this current without overheating. Failure to follow these instructions can result in equipment damage. </div>	0 to 1.2 In (1)	0.7 In (1)
EdC 2 ★	<input type="checkbox"/> [Auto DC inj. time 2] Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65. <div> CAUTION RISK OF DAMAGE TO THE MOTOR <ul style="list-style-type: none"> Long periods of DC injection braking can cause overheating and damage the motor. Protect the motor by avoiding long periods of DC injection braking. Failure to follow these instructions can result in equipment damage. </div>	0 to 30 s	0 s
SDC 2 ★	<input type="checkbox"/> [Auto DC inj. level 2] Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65. <div> CAUTION RISK OF DAMAGE TO THE MOTOR <ul style="list-style-type: none"> Check that the motor will withstand this current without overheating. Failure to follow these instructions can result in equipment damage. </div>	0 to 1.2 In (1)	0.5 In (1)

(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.

[SETTINGS] (SEt-) menu

Code	Description	Adjustment range	Factory setting
JPF	<input type="checkbox"/> [Skip Frequency] Helps to prevent prolonged operation at a frequency range of ± 1 Hz around [Skip Frequency] (JPF) . This function helps to prevent a critical speed which leads to resonance. Setting the function to 0 renders it inactive.	0 to 500 Hz	0 Hz
JF2	<input type="checkbox"/> [Skip Frequency 2] Helps to prevent prolonged operation at a frequency range of ± 1 Hz around [Skip Frequency 2] (JF2) . This function helps to prevent a critical speed which leads to resonance. Setting the function to 0 renders it inactive.	1 to 500 Hz	0 Hz
JGF	<input type="checkbox"/> [Jog frequency] Parameter can be accessed if [JOG] (JOG) is not set to [No] (nO) , page 72.	0 to 10 Hz	10 Hz
★			
rPG	<input type="checkbox"/> [PID prop. gain] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77. It provides dynamic performance when PI feedback is changing quickly.	0.01 to 100	1
★			
rIG	<input type="checkbox"/> [PID integral gain] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77. It provides static precision when PI feedback is changing slowly.	0.01 to 100/s	1
★			
FbS	<input type="checkbox"/> [PID fbk scale factor] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77. For adapting the process.	0.1 to 100	1
★			
PIC	<input type="checkbox"/> [PID correct. reverse] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77.		[No] (nO)
★			
nO YES	<input type="checkbox"/> [No] (nO): Normal <input type="checkbox"/> [Yes] (YES): Reverse		
rP2	<input type="checkbox"/> [Preset ref. PID 2] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77, and if [2 preset PID ref.] (Pr2) , page 77, has been enabled by the input selection.	0 to 100%	30%
★			
rP3	<input type="checkbox"/> [Preset ref. PID 3] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77, and if [4 preset PID ref.] (Pr4) , page 78, has been enabled by the input selection.	0 to 100%	60%
★			
rP4	<input type="checkbox"/> [Preset ref. PID 4] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77, and if [4 preset PID ref.] (Pr4) , page 78, has been enabled by the input selection.	0 to 100%	90%
★			
SP2	<input type="checkbox"/> [Preset speed 2] See page 70.	0 to 500 Hz	10 Hz
★			



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.

[SETTINGS] (SEt-) menu

REF -

SEt -

drC -

LD -

CLL -

FUn -

FLt -

CON -

SUP -

Code	Description	Adjustment range	Factory setting
SP3 ★	<input type="checkbox"/> [Preset speed 3] See page 70 .	0 to 500 Hz	15 Hz
SP4 ★	<input type="checkbox"/> [Preset speed 4] See page 70 .	0 to 500 Hz	20 Hz
SP5 ★	<input type="checkbox"/> [Preset speed 5] See page 70 .	0 to 500 Hz	25 Hz
SP6 ★	<input type="checkbox"/> [Preset speed 6] See page 70 .	0 to 500 Hz	30 Hz
SP7 ★	<input type="checkbox"/> [Preset speed 7] See page 70 .	0 to 500 Hz	35 Hz
SP8 ★	<input type="checkbox"/> [Preset speed 8] See page 70 .	0 to 500 Hz	40 Hz
SP9 ★	<input type="checkbox"/> [Preset speed 9] See page 70 .	0 to 500 Hz	45 Hz
SP10 ★	<input type="checkbox"/> [Preset speed 10] See page 70 .	0 to 500 Hz	50 Hz
SP11 ★	<input type="checkbox"/> [Preset speed 11] See page 71 .	0 to 500 Hz	55 Hz
SP12 ★	<input type="checkbox"/> [Preset speed 12] See page 71 .	0 to 500 Hz	60 Hz
SP13 ★	<input type="checkbox"/> [Preset speed 13] See page 71 .	0 to 500 Hz	70 Hz
SP14 ★	<input type="checkbox"/> [Preset speed 14] See page 71 .	0 to 500 Hz	80 Hz
SP15 ★	<input type="checkbox"/> [Preset speed 15] See page 71 .	0 to 500 Hz	90 Hz
SP16 ★	<input type="checkbox"/> [Preset speed 16] See page 71 .	0 to 500 Hz	100 Hz



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.

[SETTINGS] (SEt-) menu

Code	Description	Adjustment range	Factory setting
CL1	<input type="checkbox"/> [Current Limitation] Used to limit the torque and the temperature rise of the motor. <div> CAUTION RISK OF DAMAGE TO THE MOTOR AND THE DRIVE <ul style="list-style-type: none"> Check that the motor will withstand this current, particularly in the case of permanent magnet synchronous motors, which are susceptible to demagnetization. Check that the profile mission complies with the derating curve given in the installation manual. Failure to follow these instructions can result in equipment damage. </div>	0.25 to 1.5 In (1)	1.5 In (1)
CL2 ★	<input type="checkbox"/> [I Limit. 2 value] Parameter is only visible if [Current limit 2] (LC2) is not set to [No] (nO) , page 82. <div> CAUTION RISK OF DAMAGE TO THE MOTOR AND THE DRIVE <ul style="list-style-type: none"> Check that the motor will withstand this current, particularly in the case of permanent magnet synchronous motors, which are susceptible to demagnetization. Check that the profile mission complies with the derating curve given in the installation manual. Failure to follow these instructions can result in equipment damage. </div>	0.25 to 1.5 In (1)	1.5 In (1)
ELS	<input type="checkbox"/> [Low speed time out] After operating at [Low speed] (LSP) for a given time, the motor is stopped automatically. The motor restarts if the frequency reference is greater than the [Low speed] (LSP) and if a run command is still present. Note: Value 0 corresponds to an unlimited period.	0 to 999.9 s	0 (no time limit)
rSL ★	<input type="checkbox"/> [PID wake up thresh.] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO) , page 77. If the "PI" and "Low speed operating time" [Low speed time out] (tLS) functions, page 35, are configured at the same time, the PI regulator may attempt to set a speed lower than [Low speed] (LSP) . This results in unsatisfactory operation, which consists of starting, operating at [Low speed] (LSP) , then stopping, and so on. The [PID wake up thresh.] (rSL) parameter (restart error threshold) is used to set a minimum PID error threshold for restarting after a stop at prolonged [Low speed] (LSP) . The function is inactive if [Low speed time out] (tLS) = 0. <div> ⚠ DANGER UNINTENDED EQUIPMENT OPERATION <ul style="list-style-type: none"> Check that unintended restarts will not present any danger. Failure to follow these instructions will result in death or serious injury. </div>	0 to 100%	0%
UFR2 ★	<input type="checkbox"/> [IR compensation 2] - For [U/F mot.2 selected] (UFt2) = [SVC] (n) or [Energy sav.] (nLd) : IR compensation. - For [U/F mot.2 selected] (UFt2) = [Cst. torque] (L) or [Var. torque] (P) : voltage boost. Used to optimize the torque at very low speed (increase [IR compensation 2] (UFR2) if the torque is insufficient). Check that the value for [IR compensation 2] (UFR2) is not too high when the motor is in a hot state otherwise some instabilities can occur. Changing [U/F mot.2 selected] (UFt2) will cause [IR compensation 2] (UFR2) to return to its factory setting (20%).	0 to 100%	20%

(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.

[SETTINGS] (SEt-) menu

REF -

SEt -

drC -

LD -

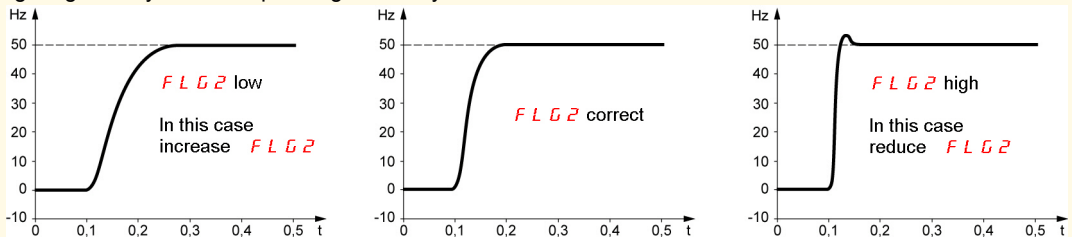
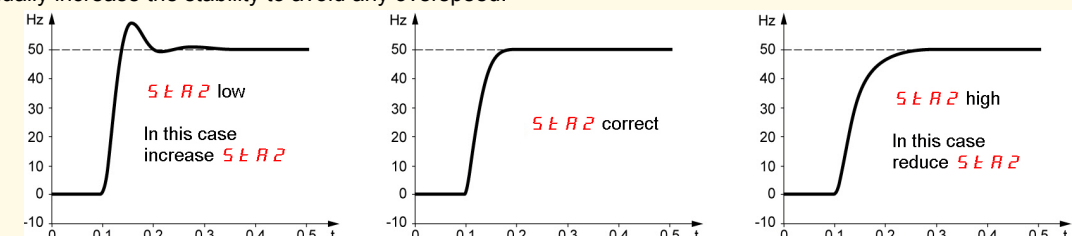
CLL -

FUn -

FLt -

CON -

SUP -

Code	Description	Adjustment range	Factory setting
FLG2	<p><input type="checkbox"/> [FreqLoopGain 2]</p> <p>Parameter can only be accessed if [U/F mot.2 selected] (UFT2) = [SVC] (n) or [Energy sav.] (nLd), page 84. The [FreqLoopGain 2] (FLG2) parameter adjusts the drive's ability to follow the speed ramp on the basis of the inertia of the machine being driven. Too high a gain may result in operating instability.</p> 	0 to 100%	20%
SEAR2	<p><input type="checkbox"/> [Freq. loop stability 2]</p> <p>Parameter can only be accessed if [U/F mot.2 selected] (UFT2) = [SVC] (n) or [Energy sav.] (nLd), page 84. Used to adapt the return to steady state after a speed transient (acceleration or deceleration), according to the dynamics of the machine. Gradually increase the stability to avoid any overspeed.</p> 	0 to 100%	20%
SLP2	<p><input type="checkbox"/> [Slip compensation 2]</p> <p>Parameter can only be accessed if [U/F mot.2 selected] (UFT2) = [SVC] (n) or [Energy sav.] (nLd), page 84. Adjusts the slip compensation around the value set by the nominal motor speed. The speeds given on motor rating plates are not necessarily exact. • If slip setting < actual slip: The motor is not rotating at the correct speed in steady state. • If slip setting > actual slip: The motor is overcompensated and the speed is unstable.</p>	0 to 150%	100%
Ftd	<p><input type="checkbox"/> [Freq. threshold]</p> <p>Threshold beyond which the contact on the relay ([R2 Assignment] (r2) = [Freq.Th.att.] (FtA)) closes or output dO = 24 V ([Logic output] (dO) = [Freq. limit] (FtA)).</p>	0 to 500 Hz	bFr
tt d	<p><input type="checkbox"/> [Motor therm. level]</p> <p>Threshold beyond which the contact on the relay ([R2 Assignment] (r2) = [Th.mot. att.] (tSA)) closes or output dO = 24 V ([Logic output] (dO) = [Drv thermal] (tSA)).</p>	1 to 118%	100%
Ctd	<p><input type="checkbox"/> [Current threshold]</p> <p>Threshold beyond which the contact on the relay ([R2 Assignment] (r2) = [I attained] (CtA)) closes or output dO = 24 V ([Logic output] (dO) = [Current limit] (CtA)).</p>	0 to 1.5 In (1)	In (1)

(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.

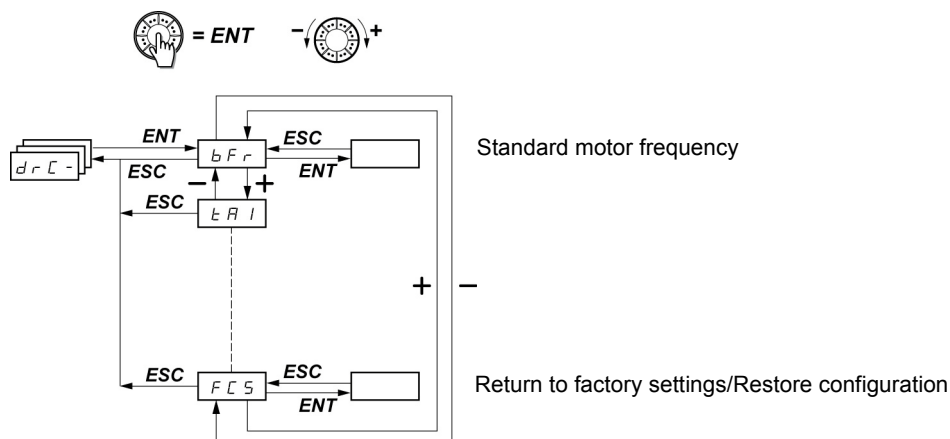
[SETTINGS] (SEt-) menu

Code	Description	Adjustment range	Factory setting
SdS	<p><input type="checkbox"/> [Scale factor display]</p> <p>Used to display a value in proportion to the output frequency [Output frequency] (rFr): the machine speed, the motor speed, etc.</p> <ul style="list-style-type: none"> If [Scale factor display] (SdS) ≤ 1, [Cust. output value] (SPd1) is displayed (possible definition = 0.01) If 1 < [Scale factor display] (SdS) ≤ 10, [Cust. output value] (SPd2) is displayed (possible definition = 0.1) If [Scale factor display] (SdS) > 10, [Cust. output value] (SPd3) is displayed (possible definition = 1) If [Scale factor display] (SdS) > 10 and [Scale factor display] (SdS) x [Output frequency] (rFr) > 9,999: <p>the display will show</p> $[\text{Cust. output value}] (\text{SPd3}) = \frac{[\text{Scale factor display}] (\text{SdS}) \times [\text{Output frequency}] (\text{rFr})}{1000} \text{ to 2 decimal places}$ <p>example: for 24,223, display will show 24.22</p> <ul style="list-style-type: none"> If [Scale factor display] (SdS) > 10 and [Scale factor display] (SdS) x [Output frequency] (rFr) > 65,535, display locked at 65.54 <p>Example: Display motor speed for 4-pole motor, 1,500 rpm at 50 Hz (synchronous speed): [Scale factor display] (SdS) = 30 [Cust. output value] (SPd3) = 1,500 at [Output frequency] (rFr) = 50 Hz</p>	0.1 to 200	30
SFr	<p><input type="checkbox"/> [Switching freq.] (1)</p> <p>Parameter can also be accessed in the [MOTOR CONTROL] (drC-) menu. The frequency can be adjusted to reduce the noise generated by the motor.</p> <p>If the frequency has been set to a value higher than 4 kHz, in the event of excessive temperature rise, the drive will automatically reduce the switching frequency and increase it again once the temperature has returned to normal.</p>	2.0 to 16 kHz	4 kHz

(1) Parameter can also be accessed in the [MOTOR CONTROL] (drC-) menu.

[MOTOR CONTROL] (drC-) menu

rEF -
 SEt -
 drC -
 I.D -
 CLt -
 FUn -
 FLt -
 CON -
 SUP -



With the exception of [\[Auto tuning\] \(tUn\)](#), which can power up the motor, parameters can only be changed in stop mode, with no run command present.

Drive performance can be optimized by:

- Entering the values given on the motor rating plate in the Drive menu
- Performing an auto-tune operation (on a standard asynchronous motor)

Code	Description	Adjustment range	Factory setting
bFr SD 60	<input type="checkbox"/> [Standard mot. freq] [50Hz IEC] (50) : 50 Hz: IEC [60Hz NEMA] (60) : 60 Hz: NEMA This parameter modifies the presets of the following parameters: [High speed] (HSP) , page 30, [Freq. threshold] (Ftd) , page 36, [Rated motor freq.] (FrS) , page 38, and [Max frequency] (tFr) , page 41.		[50Hz IEC] (50)
UnS	<input type="checkbox"/> [Rated motor volt.] Nominal motor voltage given on the rating plate. When the line voltage is lower than the nominal motor voltage, set [Rated motor volt.] (UnS) to the same value as the line voltage for the drive terminals. 8I64S2****.00X-1: 100 to 240 V 8I64T2****.00X-1: 100 to 240 V 8I64T4****.00X-1: 100 to 500 V	In accordance with the drive rating	In accordance with the drive rating
FrS	<input type="checkbox"/> [Rated motor freq.] Nominal motor frequency marked on the rating plate. The factory setting is 50 Hz, or 60 Hz if [Standard mot. freq] (bFr) is set to 60 Hz. Note: The ratio $\frac{\text{[Rated motor volt.] (UnS) (in volts)}}{\text{[Rated motor freq.] (FrS) (in Hz)}}$ must not exceed the following values: 8I64S2****.00X-1: 7 max. 8I64T2****.00X-1: 7 max. 8I64T4****.00X-1: 14 max. The factory setting is 50 Hz, or preset to 60 Hz if [Standard mot. freq] (bFr) is set to 60 Hz.	10 to 500 Hz	50 Hz
nCr	<input type="checkbox"/> [Rated mot. current] Nominal motor current given on the rating plate.	0.25 to 1.5 In (1)	In accordance with the drive rating

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

[MOTOR CONTROL] (drC-) menu

Code	Description	Adjustment range	Factory setting
nSP	<p><input type="checkbox"/> [Rated motor speed]</p> <p>0 to 9,999 rpm then 10.00 to 32.76 krpm If, rather than the nominal speed, the nameplate indicates the synchronous speed and the slip in Hz or as a %, calculate the nominal speed as follows:</p> <ul style="list-style-type: none"> Nominal speed = synchronous speed x $\frac{100 - \text{slip as a \%}}{100}$ or Nominal speed = synchronous speed x $\frac{50 - \text{slip in Hz}}{50}$ (50 Hz motors) or Nominal speed = synchronous speed x $\frac{60 - \text{slip in Hz}}{60}$ (60 Hz motors) 	0 to 32,760 rpm	In accordance with the drive rating
COS	<p><input type="checkbox"/> [Motor 1 Cosinus Phi]</p> <p>Motor Cos Phi given on the motor rating plate</p>	0.5 to 1	In accordance with the drive rating
rSC nD Init BBBB	<p><input type="checkbox"/> [Cold stator resist.]</p> <p><input type="checkbox"/> [No] (nO): function inactive. For applications which do not require high performance or do not tolerate automatic auto-tuning (passing a current through the motor) each time the drive is powered up.</p> <p><input type="checkbox"/> [Init] (Init): activates the function. To improve low-speed performance whatever the thermal state of the motor.</p> <p><input type="checkbox"/> Value of cold state stator resistance used, in mΩ.</p> <p>Note:</p> <ul style="list-style-type: none"> It is strongly recommended that this function is activated for mechanical handling applications. The function should only be activated [Init] (Init) when the motor is cold. When [Cold stator resist.] (rSC) = [Init] (Init), the [Auto-tuning] (tUn) parameter is forced to [Power on] (POn). At the next run command the stator resistance is measured with an auto-tune. The [Cold stator resist.] (rSC) then changes to a value of (BBBB) and maintains it, [Auto-tuning] (tUn) is still forced to [Power on] (POn). The [Cold stator resist.] (rSC) parameter remains at [Init] (Init) as long as the measurement has not been performed. Value BBBB can be forced or changed using the jog dial (1). 		[No] (nO)

(1) Procedure:

- Check that the motor is cold.
- Disconnect the cables from the motor terminals.
- Measure the resistance between 2 of the motor terminals (U. V. W.) without modifying its connection.
- Use the jog dial to enter half the measured value.
- Increase the factory setting of [IR compensation] (UFR), page 30, to 100% rather than 20%.

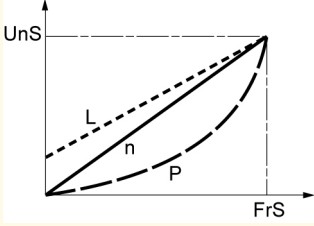
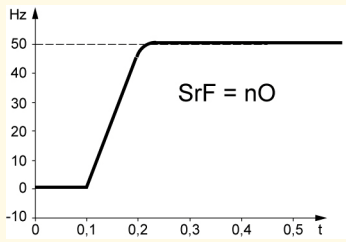
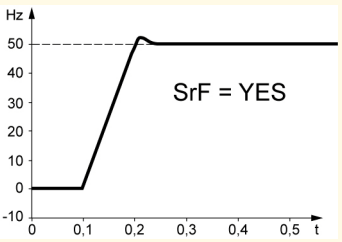
Note: Do not use [Cold stator resist.] (rSC) if it is not set to [No] (nO) or = [Power on] (POn) with catch on the fly ([CATCH ON THE FLY] (FLr-), page 89).

[MOTOR CONTROL] (drC-) menu

REF -
SEt -
drC -
I_D -
CLL -
FUN -
FLt -
CON -
SUP -

Code	Description	Adjustment range	Factory setting
tUn	<p><input type="checkbox"/> [Auto tuning]</p> <p>⚠ ⚠ DANGER</p> <p>HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH</p> <ul style="list-style-type: none"> During auto-tuning the motor operates at nominal current. Do not work on the motor during auto-tuning. <p>Failure to follow these instructions will result in death or serious injury.</p> <p>⚠ WARNING</p> <p>LOSS OF CONTROL</p> <ul style="list-style-type: none"> It is essential that the [Rated motor volt.] (UnS), [Rated motor freq.] (FrS), [Rated mot. current] (nCr), [Rated motor speed] (nSP), [Motor 1 Cosinus Phi.] (COS) parameters are configured correctly before starting auto-tuning. When one or more parameters have been changed after auto-tuning has been performed, [Auto-tuning] (tUn) will return [No] (nO) and the procedure will have to be repeated. <p>Failure to follow these instructions will result in death, serious injury, or equipment damage.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [No] (nO): Auto-tuning not performed <input type="checkbox"/> [Yes] (YES): [Auto-tuning] (tUn) could only be set to [Yes] (YES) with the AsIOAcc library in an application. Auto-tuning is performed as soon as possible, then the parameter automatically changes to [Done] (dOnE) or [No] (nO) in the event that Auto-tuning is not successful [AUTO TUNING FAULT] (tnF) is displayed if [Autotune fault mgt] (tnL) = [Yes] (YES), page 91. <input type="checkbox"/> [Done] (dOnE): Use of the values given the last time auto-tuning was performed <input type="checkbox"/> [Drv running] (rUn): Auto-tuning is performed every time a run command is sent <input type="checkbox"/> [Power on] (POn): [Auto-tuning] (tUn) could only be set to [Power on] (POn) with the [Cold stator resist.] (rSC) ([Cold stator resist.] (rSC) = [Init] (InIt), see the note below). Auto-tuning is performed on every power-up <input type="checkbox"/> [LI1] to [LI4] (LI1) to (LI4): Auto-tuning is performed on the transition from 0 → 1 of a logic input assigned to this function <p>⚠ ⚠ DANGER</p> <p>HAZARD OF ELECTRIC SHOCK OR ARC FLASH</p> <p>When [Auto tuning] (tUn) is set [Power on] (POn), Auto tune will be performed every time the power will be switched on.</p> <ul style="list-style-type: none"> Check this action will not endanger personnel or equipment in any way. <p>Failure to follow these instructions will result in death or serious injury.</p> <p>Note:</p> <p>[Auto-tuning] (tUn) is forced to [Power on] (POn) if [Cold stator resist.] (rSC) = [Init] (InIt). Auto-tuning is only performed if no command has been activated. If a "freewheel stop" or "fast stop" function is assigned to a logic input, this input must be set to 1 (active at 0). Auto-tuning may take 1 to 2 seconds. Do not interrupt the process. Wait for the display to change to [Done] (dOnE) or [No] (nO).</p>		[No] (nO)
tUS	<p><input type="checkbox"/> [Auto tuning state]</p> <p>(For information only, cannot be modified)</p> <ul style="list-style-type: none"> <input type="checkbox"/> [Not done] (tAb): The default stator resistance value is used to control the motor <input type="checkbox"/> [Pending] (PEnd): Auto-tuning has been requested but not yet performed <input type="checkbox"/> [In Progress] (PrOG): Auto-tuning in progress <input type="checkbox"/> [Failed] (FAIL): Auto-tuning was unsuccessful <input type="checkbox"/> [Done] (dOnE): The stator resistance measured by the auto-tuning function is used to control the motor <input type="checkbox"/> [Entered R1] (Strd): The cold state stator resistance ([Cold stator resist.] (rSC) which is not set to [No] (nO)) is used to control the motor 		[Not done] (tAb)

[MOTOR CONTROL] (drC-) menu

Code	Description	Adjustment range	Factory setting
U F t L P n n L d	<input type="checkbox"/> [U/F mot 1 selected] <input type="checkbox"/> [Cst. torque] (L): Constant torque for motors connected in parallel or special motors <input type="checkbox"/> [Var. torque] (P): Variable torque for pump and fan applications <input type="checkbox"/> [SVC] (n): Sensorless flux vector control for constant torque applications <input type="checkbox"/> [Energy sav.] (nLd): Energy saving, for variable torque applications not requiring high dynamics (behaves in a similar way to the [Var. torque] (P) ratio with no load and the [SVC] (n) ratio on load) <p>Voltage</p>  <p>Frequency</p>		[SVC] (n)
n r d YES n O	<input type="checkbox"/> [Noise reduction] <input type="checkbox"/> [Yes] (YES): Frequency with random modulation <input type="checkbox"/> [No] (nO): Fixed frequency <p>Random frequency modulation helps to prevent any resonance which may occur at a fixed frequency.</p>		[Yes] (YES)
S F r	<input type="checkbox"/> [Switching freq.] (1) <p>The frequency can be adjusted to reduce the noise generated by the motor. If the frequency has been set to a value higher than 4 kHz, in the event of excessive temperature rise, the drive will automatically reduce the switching frequency and increase it again once the temperature has returned to normal.</p>	2.0 to 16 kHz	4 kHz
t F r	<input type="checkbox"/> [Max frequency] <p>The factory setting is 60 Hz, or preset to 72 Hz if [Standard mot. freq] (bFr) is set to 60 Hz.</p>	10 to 500 Hz	60 Hz
S r F n O YES	<input type="checkbox"/> [Speed loop filter] <input type="checkbox"/> [No] (nO): The speed loop filter is active (helps to prevent the reference being exceeded) <input type="checkbox"/> [Yes] (YES): The speed loop filter is suppressed (in position control applications, this reduces the response time and the reference may be exceeded) <div>   </div>		[No] (nO):

(1) Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

[MOTOR CONTROL] (drC-) menu

REF -
SEt -
drC -
I/O -
CLt -
FUN -
FLt -
CON -
SUP -


Code	Description	Adjustment range	Factory setting
SCS	<input type="checkbox"/> [Saving config.] <input type="checkbox"/> [No] (nO): Function inactive <input type="checkbox"/> [Config 1] (Str1): Saves the current configuration (but not the result of auto-tuning) to EEPROM. [Saving config.] (SCS) automatically switches to [No] (nO) as soon as the save has been performed. This function is used to keep another configuration in reserve, in addition to the current configuration. When drives leave the factory the current configuration and the backup configuration are both initialized with the factory configuration. [Saving config.] (SCS) automatically switches to [No] (nO) as soon as the save has been performed	(1)	[No] (nO)
CFG	<input type="checkbox"/> [Macro configuration] <div style="border: 1px solid black; padding: 5px; margin: 10px 0;"> <p style="text-align: center;">⚠ DANGER</p> <p>UNINTENDED EQUIPMENT OPERATION</p> <p>Check that the selected macro configuration is compatible with the wiring diagram used.</p> <p>Failure to follow these instructions will result in death or serious injury.</p> </div> <p>Choice of source configuration.</p> <input type="checkbox"/> [Start/Stop] (StS): Start/stop configuration Identical to the factory configuration apart from the I/O assignments: <ul style="list-style-type: none"> Logic inputs: <ul style="list-style-type: none"> LI1, LI2 (reversing): 2-wire transition detection control, LI1 = run forward, LI2 = run reverse LI3 to LI4: Inactive (not assigned) Analog inputs: <ul style="list-style-type: none"> AI1: Not applicable AI2, AI3: Inactive (not assigned) Relay R1: Not applicable Relay R2: Inactive (not assigned) Analog output AOC: Not applicable <input type="checkbox"/> [Factory set.] (Std): Factory configuration (see page 10) Note: The assignment of [Macro configuration] (CFG) results directly in a return to the selected configuration.	(1)	[Factory set.] (Std)

(1) [Saving config.] (SCS), [Macro configuration] (CFG), and [Restore config.] (FCS) can be accessed from several configuration menus, but they apply to all menus and parameters.




The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[MOTOR CONTROL] (drC-) menu

Code	Description	Adjustment range	Factory setting
<div>FCS</div> <div> 2 s</div> <div>nD</div> <div>rECI</div> <div>InI</div>	<div><input type="checkbox"/> [Restore config.]</div> <div><div><div><div>⚠ DANGER</div><div>UNINTENDED EQUIPMENT OPERATION</div><div>Check that the changes made to the current configuration are compatible with the wiring diagram used.</div><div>Failure to follow these instructions will result in death or serious injury.</div></div></div></div> <div><input type="checkbox"/> [No] (nO): Function inactive <input type="checkbox"/> [Internal] (rEC1): The current configuration becomes identical to the backup configuration previously saved by [Saving config.] (SCS) = [Config 1] (Str1). [Internal] (rEC1) is only visible if the backup has been carried out. [Restore config.] (FCS) automatically switches to [No] (nO) as soon as this action has been performed. <input type="checkbox"/> [Factory Set.] (InI): The current configuration is replaced by the configuration selected by the [Macro configuration] (CFG) parameter (2). [Restore config.] (FCS) automatically switches to [No] (nO) as soon as this action has been performed. Note: If nAd appears on the display briefly before the parameter switches to [No] (nO), this means that the configuration transfer is not possible and has not been performed (different drive ratings, for example). If nEr appears on the display briefly before the parameter switches to [No] (nO), this means that an invalid configuration transfer has occurred and that the factory settings will need to be restored using [Factory Set.] (InI). In both cases, check the configuration to be transferred before trying again.</div>	(1)	[No] (nO)

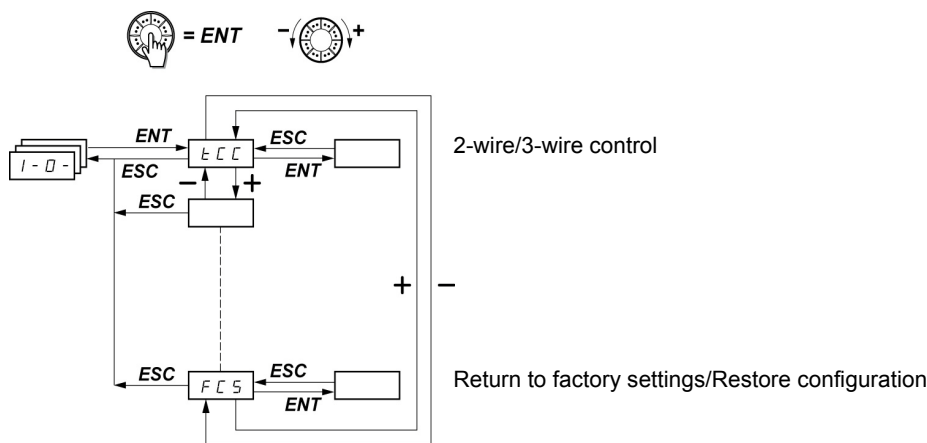
- (1) [Saving config.] (SCS), [Macro configuration] (CFG), and [Restore config.] (FCS) can be accessed from several configuration menus, but they apply to all menus and parameters.
- (2) The following parameters are not modified by this function; they retain their configuration:
- [Standard mot. freq] (bFr), page 38
 - [HMI command] (LCC), page 58
 - [PIN code 1] (COd), (terminal access code), page 99
 - The parameters in the [COMMUNICATION] (COM-) menu
 - The parameters in the [MONITORING] (SUP-) menu

 2 s

The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[INPUTS / OUTPUTS CFG] (I_O-) menu

rEF -
SEt -
drC -
I_O -
CLL -
FUN -
FLt -
CON -
SUP -



The parameters can only be modified when the drive is stopped and no run command is present.

Code	Description	Adjustment range	Factory setting
tCC	<input type="checkbox"/> [2/3 wire control] See page 27.		[2 wire] (2C)
2 s			
tCC	<input type="checkbox"/> [2 wire type] <div><div><div><div>⚠ DANGER</div><div>UNINTENDED EQUIPMENT OPERATION</div><div>Check that the changes made to 2-wire control are compatible with the wiring diagram used.</div><div>Failure to follow these instructions will result in death or serious injury.</div></div></div><div>Parameter can be accessed if [2/3 wire control] (tCC) = [2 wire] (2C), page 44. <input type="checkbox"/> [Level] (LEL): State 0 or 1 is taken into account for run or stop <input type="checkbox"/> [Transition] (trn): A change of state (transition or edge) is necessary to initiate operation, in order to help prevent accidental restarts after a break in the power supply <input type="checkbox"/> [Fwd priority] (PFO): State 0 or 1 is taken into account for run or stop, but the "forward" input takes priority over the "reverse" input</div></div>		[Transition] (trn)
LEL			
trn			
PFO			






The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[INPUTS / OUTPUTS CFG] (I_O-) menu

Code	Description	Adjustment range	Factory setting
rrS nO L11 L12 L13 L14 L15 L16	<input type="checkbox"/> [Reverse assign.] If [Reverse assign.] (rrS) = [No] (nO), run reverse remains active by means of negative voltage on AI2, for example. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 can be accessed if [2/3 wire control] (tCC) = [2 wire] (2C), page 44. <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable		[LI2] (LI2)
CrL3 CrH3	<input type="checkbox"/> [AI3 min. value] <input type="checkbox"/> [AI3 max. value] These two parameters are used to configure the input for 0-20 mA, 4-20 mA, 20-4 mA, etc. Frequency	0 to 20 mA 4 to 20 mA	4 mA 20 mA
		Example: 20 - 4 mA	
AO1t OA 4A 10U	<input type="checkbox"/> [AO1 Type] This parameter is not visible when CANopen communication card is connected. <input type="checkbox"/> [Current] (OA): 0 - 20 mA configuration; this configuration is used for dO. <input type="checkbox"/> [Cur. 4-20] (4A): Not applicable <input type="checkbox"/> [Voltage] (10U): Not applicable		[Current](OA)
dO nO OCr OFr Otr OPr FLt rUn FtA FLA CtA SrA tSA bLC APL	<input type="checkbox"/> [Logic output] This parameter is not visible when CANopen communication card is connected. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [I motor] (OCr): Not applicable <input type="checkbox"/> [Motor freq.] (OFr): Not applicable <input type="checkbox"/> [Motor torq.] (Otr): Not applicable <input type="checkbox"/> [P. supplied] (OPr): Not applicable Making the following assignments will transform the analog output to a logic output (see diagram in the Installation Manual): <input type="checkbox"/> [Drive fault] (FLt): Fault detected <input type="checkbox"/> [Drv running] (rUn): Drive running <input type="checkbox"/> [Freq. limit] (FtA): Frequency threshold reached ([Freq. threshold] (Ftd) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [HSP limit] (FLA): [High speed] (HSP) reached <input type="checkbox"/> [I attained] (CtA): Current threshold reached ([Current threshold] (Ctd) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [Freq. ref.] (SrA): Frequency reference reached <input type="checkbox"/> [Drv thermal] (tSA): Motor thermal threshold reached ([Motor therm. level] (ttd) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [Brake seq] (bLC): Brake sequence (for information, as this assignment can only be activated or deactivated from the [APPLICATION FUNCT.] (FUn-) menu, page 81) <input type="checkbox"/> [No 4-20mA] (APL): Not applicable The logic output is in state 1 (24 V) when the selected assignment is active, with the exception of [Drive fault] (FLt) (state 1 if the drive operation is normal). Note: At the Automation Studio the parameter dO has to be set to bLC, when bLC = dO.		[No] (nO)

[INPUTS / OUTPUTS CFG] (I_O-) menu

REF -
SEt -
drC -
I_O -
CLL -
FUN -
FLt -
CDN -
SUP -

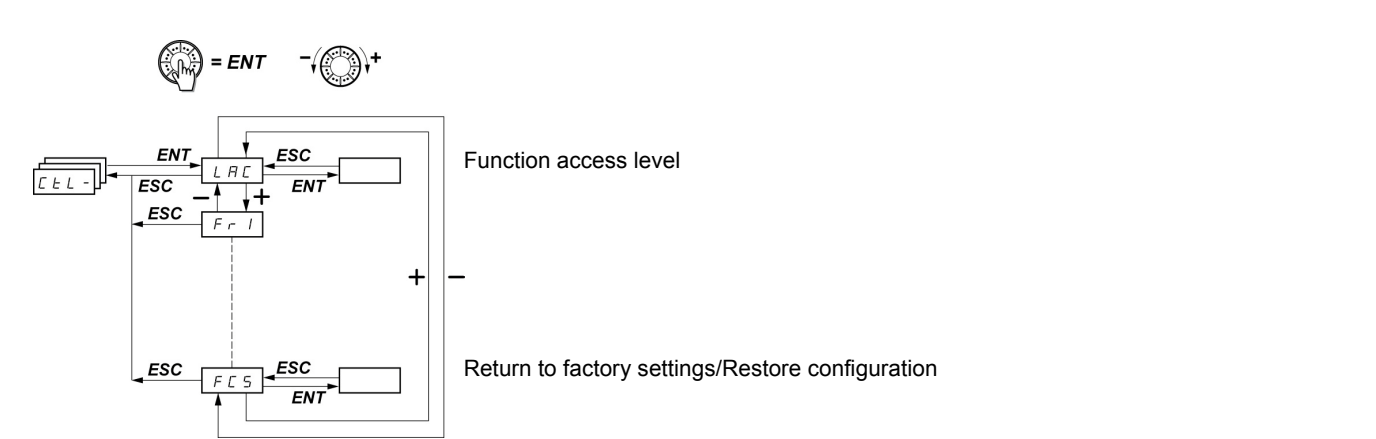
Code	Description	Adjustment range	Factory setting
r 1	<input type="checkbox"/> [R1 Assignment] Not applicable		[No drive flt](FLt)
r 2	<input type="checkbox"/> [R2 Assignment] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [No drive flt] (FLt): No drive detected fault <input type="checkbox"/> [Drv running] (rUn): Drive running <input type="checkbox"/> [Freq.Th.att.] (FtA): Frequency threshold reached ([Freq. threshold] (Ftd) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [HSP attain.] (FLA): [High speed] (HSP) reached <input type="checkbox"/> [I attained] (CtA): Current threshold reached ([Current threshold] (Ctd) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [Freq.ref.att] (SrA): Frequency reference reached <input type="checkbox"/> [Th.mot. att.] (tSA): Motor thermal threshold reached ([Motor therm. level] (ttt) parameter in the [SETTINGS] (SEt-) menu, page 36) <input type="checkbox"/> [Brk control] (bLC): Brake sequence (for information, as this assignment can only be activated or deactivated from the [APPLICATION FUNCT.] (FUn-) menu, page 81) <input type="checkbox"/> [4-20mA] (APL): Not applicable <input type="checkbox"/> [LI1] to [LI4] (LI1) to (LI4): Returns the value of the selected logic input <p>The relay is energized when the selected assignment is active, with the exception of [No drive flt] (FLt) (energized if the drive has not detected a fault).</p> <p>Note: At the Automation Studio the parameter r 2 has to be set to bLC, when bLC = r 2.</p> <div style="border: 1px solid black; padding: 5px; text-align: center;"> CAUTION </div> <div style="border: 1px solid black; padding: 5px;"> RISK OF DAMAGE TO MOTOR Below hardware revision B5: With the settings [No drive flt] (FLt) and [LI1] to [LI4] (LI1) to (LI4) the R2 is also switched on, when the X2X communication is disconnected. Failure to follow these instructions can result in equipment damage. </div>		[No] (nO)
SCS  2 s	<input type="checkbox"/> [Saving config.] (1) See page 42.		nO
CFG  2 s	<input type="checkbox"/> [Macro configuration] (1) See page 42.		Std
FCS  2 s	<input type="checkbox"/> [Restore config.] (1) See page 43.		nO

(1) [Saving config.] (SCS), [Macro configuration] (CFG), and [Restore config.] (FCS) can be accessed from several configuration menus, but they apply to all menus and parameters.



The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[COMMAND] (CtL-) menu



The parameters can only be modified when the drive is stopped and no run command is present.

Control and reference channels

Run commands (forward, reverse, etc.) and references can be sent using the following channels:

Command CMD	Reference rFr
tEr: Terminals (Llx)	Alx: Terminals
LOC: Control via the keypad	AlV1: Jog dial
nEt: Integrated communication interface	nEt: Integrated communication interface
LCC: Remote display terminal	LCC: Remote display terminal

WARNING

LOSS OF CONTROL

The stop buttons on the ACOPOSinverter X64 (integrated into the drive and on the remote terminals) can be programmed as non-priority buttons. A stop button can only have priority if the [Stop Key priority] (PSt) parameter in the [COMMAND] (CtL-) menu, page 58, is set to [Yes] (YES).

Failure to follow these instructions can result in death, serious injury, or equipment damage.

The [ACCESS LEVEL] (LAC) parameter in the [COMMAND] (CtL-) menu, page 55, can be used to select priority modes for the control and reference channels. It has 3 function levels:

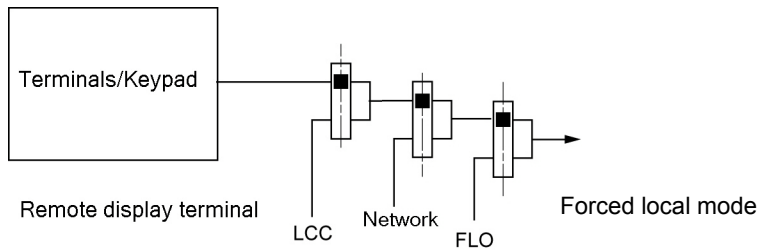
- [ACCESS LEVEL] (LAC) = Basic functions. The channels are managed in order of priority.
[Level 1] (L1):
- [ACCESS LEVEL] (LAC) = Provides the option of additional functions compared with [Level 1] (L1):
[Level 2] (L2):
 - +/- speed (motorized jog dial)
 - Brake control
 - 2nd current limit switching
 - Motor switching
 - Management of limit switches
- [ACCESS LEVEL] (LAC) = Same functions as with [Level 2] (L2). Management of the control and reference channels is configurable.
[Level 3] (L3):

[COMMAND] (CtL-) menu

rEF -
SEt -
drC -
I_D -
CtL -
FUN -
FLt -
CDN -
SUP -

These channels can be combined in order of priority if [ACCESS LEVEL] (LAC) = [Level 1] (L1) or [Level 2] (L2).

Highest priority to lowest priority: Forced local mode, Integrated communication interface (Network), Terminals/Keypad (from right to left in the diagram below)

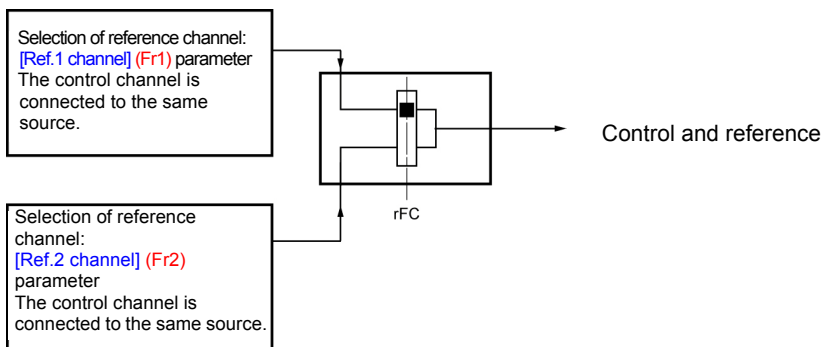


See the detailed block diagrams on pages [50](#) and [51](#).

- On ACOPOSinverter X64 drives, in factory settings mode, control and reference are managed by the terminals.
- With a remote terminal display, if [HMI command] (LCC) = [Yes] (YES) ([COMMAND] (CtL-) menu), control and reference are managed by the remote terminal display (reference via [HMI Frequency ref.] (LFr) in the [SETTINGS] (SEt-) menu).

The channels can be combined by configuration if [ACCESS LEVEL] (LAC) = [Level 3] (L3).

Combined control and reference ([Profile] (CHCF) parameter = [Not separ.] (SIM)):

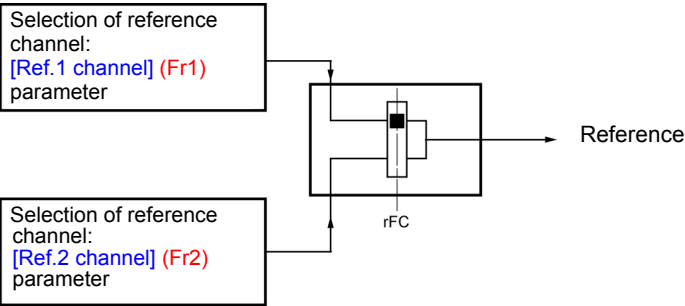


The [Ref. 2 switching] (rFC) parameter can be used to select the [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2) channel, or to configure a logic input or a control word bit for remote switching of either one.

See the detailed block diagrams on pages [52](#) and [54](#).

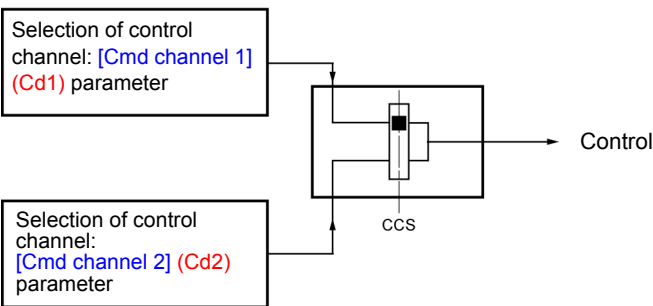
Separate control and reference ([Profile] (CHCF) parameter = [Separate] (SEP)):

Reference



The [Ref. 2 switching] (rFC) parameter can be used to select the [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2) channel, or to configure a logic input or a control word bit for remote switching of either one.

Control



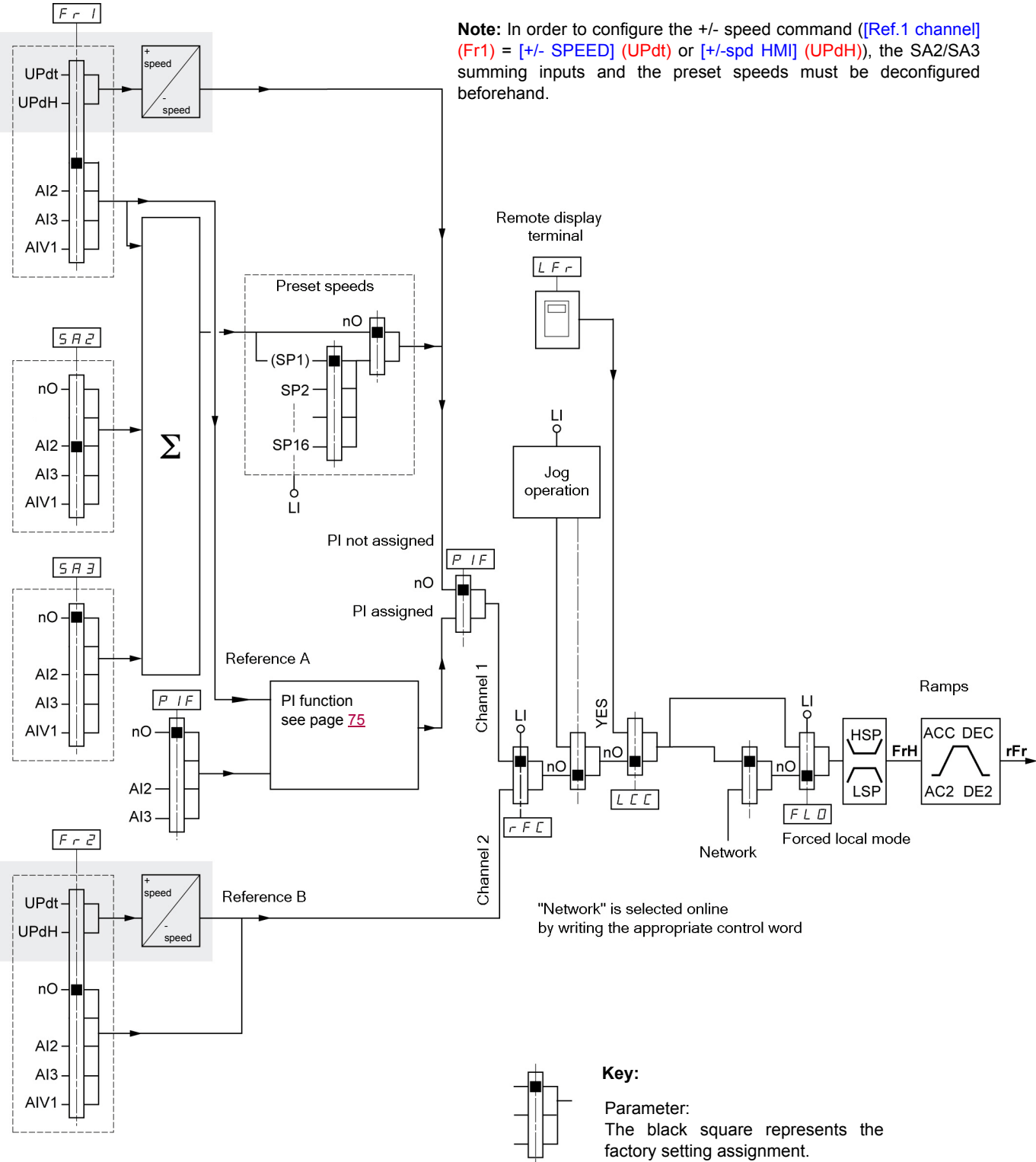
The [Cmd switching] (CCS) parameter, page 57, can be used to select the [Cmd channel 1] (Cd1) or [Cmd channel 2] (Cd2) channel, or to configure a logic input or a control bit for remote switching of either one.

See the detailed block diagrams on pages 52 and 53.

[COMMAND] (CtL-) menu

rEF -
SEt -
drC -
I_D -
CtL -
FUN -
FLt -
CON -
SUP -

Reference channel for [ACCESS LEVEL] (LAC) = [Level 1] (L1) or [Level 2] (L2)



Function can be accessed for [ACCESS LEVEL] (LAC) = [Level 2] (L2)

REF -
SEt -
drC -
e I - D -
CtL -
FUN -
FLt -
CON -
SUP -

CEL -
FUN -
FLE -
CON -
SUP -

e 1-0-

CEL -



REF -
SEt -
drC -
I.D -
CtL -
FUu -
FLt -
CON -
SUP -

Note: In order to configure the +/- speed command ([Ref.1 channel] (Fr1) = +/- SPEED) (UPdt) or [+/-spd HMI] (UPdH)), the SA2/SA3 summing inputs and the preset speeds must be deconfigured beforehand.

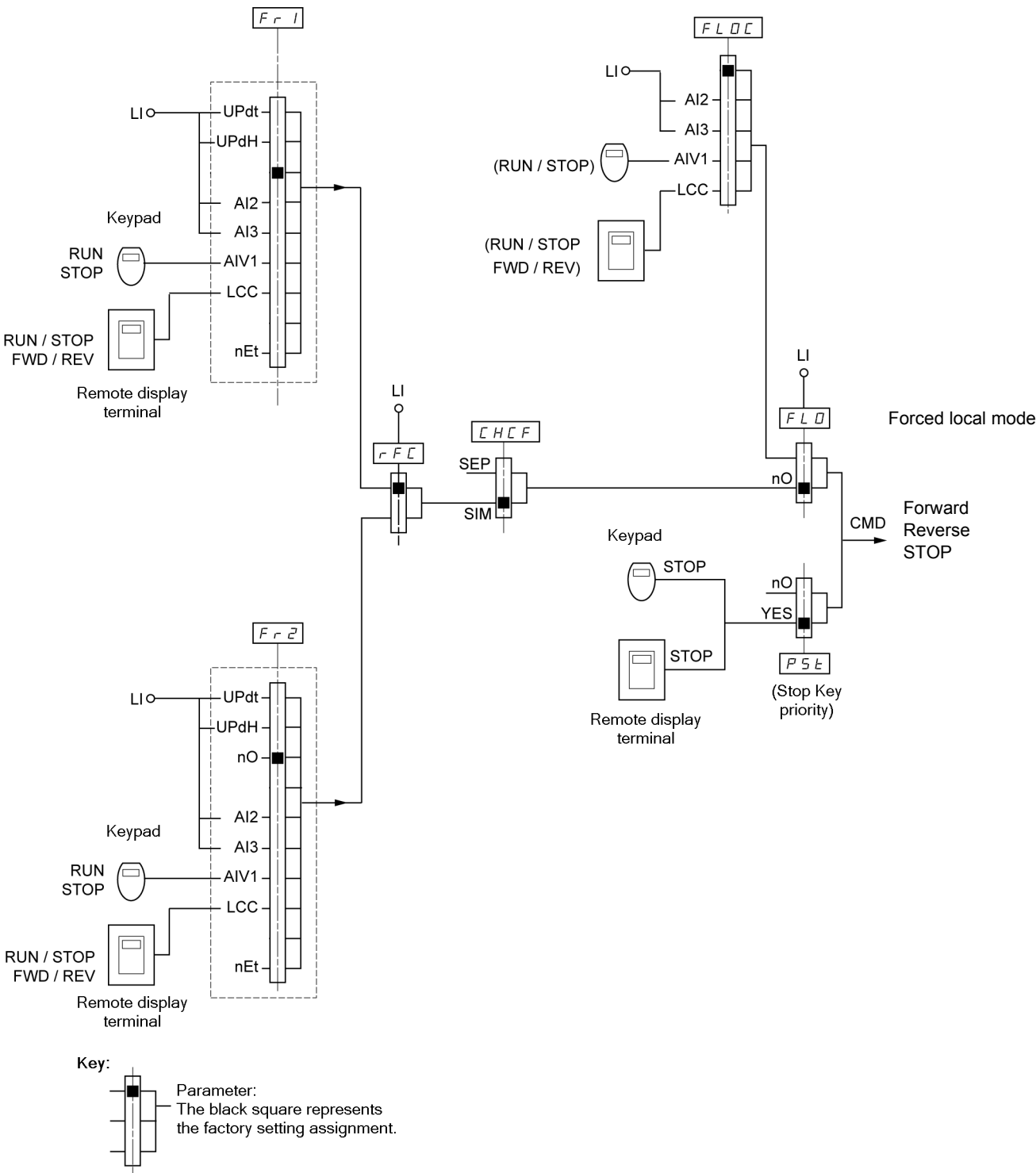


Control channel for [ACCESS LEVEL] (LAC) = [Level 3] (L3)

Combined reference and control

The [Ref.1 channel] (Fr1) parameter, page 55, the [Ref.2 channel] (Fr2) parameter, page 55, the [Ref. 2 switching] (rFC) parameter, page 56, the [Forced local assign.] (FLO) parameter, page 95, and the [Forced local Ref.] (FLOC) parameter, page 95, are common to reference and control. The control channel is therefore determined by the reference channel.

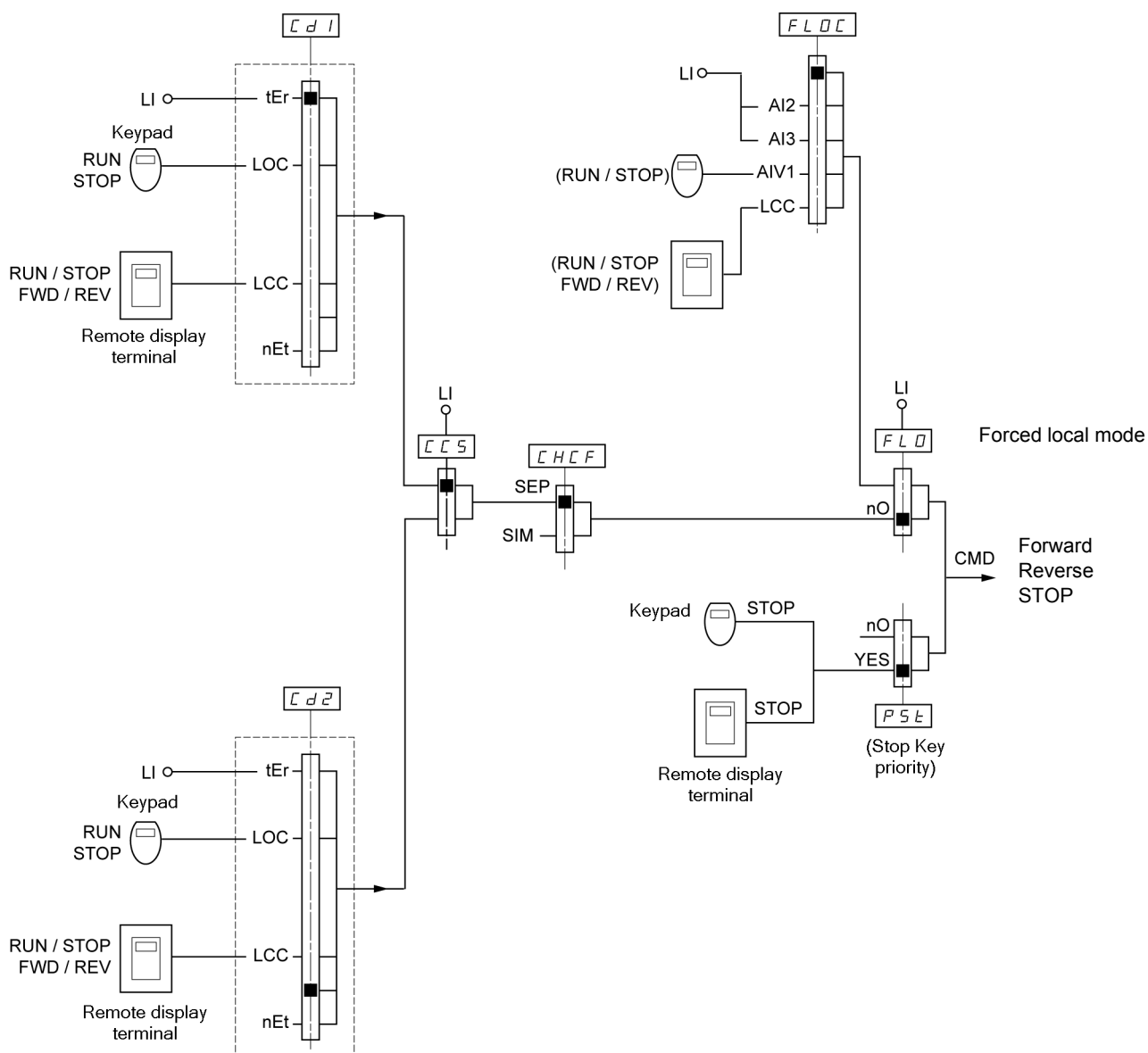
Example: If the [Ref.1 channel] (Fr1) reference = [AI1] (AI1) (analog input at the terminals), control is via LI (logic input at the terminals).



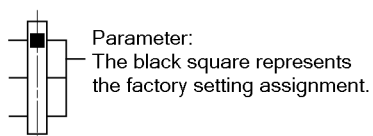
REF -
SEt -
drC -
I - D -
CtL -
FUu -
FLt -
CON -
SUP -

Mixed mode (separate reference and control)

Example: If the reference is in forced local mode via **[AI1]** (**AI1**) (analog input at the terminals), control in forced local mode is via LI (logic input at the terminals).




Key:



[COMMAND] (CtL-) menu

Note: There may be an incompatibility between functions (see the incompatibility table, page 18). In this case, the first function configured will prevent the remainder being configured.

Code	Description	Adjustment range	Factory setting
LAC	<input type="checkbox"/> [ACCESS LEVEL]		[Level 1] (L1) (1)
 2 s	<div style="background-color: black; color: white; text-align: center; padding: 5px;">⚠ DANGER</div> <p>UNINTENDED EQUIPMENT OPERATION</p> <ul style="list-style-type: none"> Assigning [ACCESS LEVEL] (LAC) to [Level 3] (L3) will restore the factory settings of the [Ref.1 channel] (Fr1) parameter, page 55, the [Cmd channel 1] (Cd1) parameter, page 56, the [Profile] (CHCF) parameter, page 56, and the [2/3 wire control] (tCC) parameter, page 44. [Level 3] (L3) can only be restored to [Level 2] (L2) or [Level 1] (L1), and [Level 2] (L2) can only be restored to [Level 1] (L1) by means of a "factory setting" via [Restore config.] (FCS), page 43. Check that this change is compatible with the wiring diagram used. <p>Failure to follow these instructions will result in death or serious injury.</p>		
L1	<input type="checkbox"/> [Level 1] (L1): Access to standard functions and channel management in order of priority.		
L2	<input type="checkbox"/> [Level 2] (L2): Access to advanced functions in the [APPLICATION FUNCT.] (FUn-) menu: <ul style="list-style-type: none"> +/- speed (motorized jog dial) Brake control 2nd current limit switching Motor switching Management of limit switches 		
L3	<input type="checkbox"/> [Level 3] (L3): Access to advanced functions and management of mixed control modes		
Fr1	<input type="checkbox"/> [Ref.1 channel]		[AI1] (AI1) (2)
	See page 26.		
Fr2	<input type="checkbox"/> [Ref.2 channel]		[No] (nO)
nO	<input type="checkbox"/> [No] (nO): Not assigned		
AI1	<input type="checkbox"/> [AI1] (AI1): Not applicable		
AI2	<input type="checkbox"/> [AI2] (AI2): Analog input AI2		
AI3	<input type="checkbox"/> [AI3] (AI3): Analog input AI3		
AIV1	<input type="checkbox"/> [AI Virtual 1] (AIV1): Jog dial		
UPdt	If [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), the following additional assignments are possible: <input type="checkbox"/> [+/-Speed] (UPdt): (3) +/- speed reference via LI. See configuration page 74.		
UPdH	<input type="checkbox"/> [+/-spd HMI] (UPdH): (3) +/- speed reference via the jog dial on the ACOPOSinverter X64 keypad. To use, display the frequency [Output frequency] (rFr), page 97. The +/- speed function via the keypad or the terminal is controlled from the [MONITORING] (SUP-) menu by selecting the [Output frequency] (rFr) parameter.		
LCC	If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following additional assignments are possible: <input type="checkbox"/> [HMI] (LCC): Reference via the remote display terminal, [HMI Frequency ref.] (LFr) parameter in the [SETTINGS] (SEt-) menu, page 29		
Mdb	<input type="checkbox"/> [Modbus] (Mdb): Not applicable		
nEt	<input type="checkbox"/> [Com. card] (nEt): Reference via integrated communication interface		

(1) When using X2X, the factory setting is changed automatically to [Level 3] (L3).

(2) When using X2X, the factory setting is changed automatically to [Com. card] (nEt).

(3) NOTE:

- It is not possible to simultaneously assign [+/- SPEED] (UPdt) to [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2), and [+/-spd HMI] (UPdH) to [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2). Only one of the [+/- SPEED] (UPdt)/[+/-spd HMI] (UPdH) assignments is permitted on each reference channel.
- The +/- speed function in [Ref.1 channel] (Fr1) is incompatible with several functions (see page 18). It can only be configured if these functions are unassigned, in particular the summing inputs (set [Summing ref. 2] (SA2) to [No] (nO), page 67) and the preset speeds (set [2 preset speeds] (PS2) and [4 preset speeds] (PS4) to [No] (nO), page 69) which will have been assigned as part of the factory settings.
- In [Ref.2 channel] (Fr2), the +/- speed function is compatible with the preset speeds, summing inputs, and the PI regulator.



The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[COMMAND] (CtL-) menu

rEF -

SEt -

drC -

LD -

CtL -

FUn -

FLt -

CON -

SUP -

Code	Description	Adjustment range	Factory setting
rFC	[Ref. 2 switching] <p>The [Ref. 2 switching] (rFC) parameter can be used to select the [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2) channel, or to configure a logic input or a control word bit for remote switching of [Ref.1 channel] (Fr1) or [Ref.2 channel] (Fr2).</p> <ul style="list-style-type: none"> <input type="checkbox"/> [ch1 active] (Fr1): Reference = reference 1 <input type="checkbox"/> [ch2 active] (Fr2): Reference = reference 2 <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable <p>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following additional assignments are possible:</p> <ul style="list-style-type: none"> <input type="checkbox"/> [C111] (C111): Not applicable <input type="checkbox"/> [C112] (C112): Not applicable <input type="checkbox"/> [C113] (C113): Not applicable <input type="checkbox"/> [C114] (C114): Not applicable <input type="checkbox"/> [C115] (C115): Not applicable <input type="checkbox"/> [C211] (C211): Bit 11 of network control word <input type="checkbox"/> [C212] (C212): Bit 12 of network control word <input type="checkbox"/> [C213] (C213): Bit 13 of network control word <input type="checkbox"/> [C214] (C214): Bit 14 of network control word <input type="checkbox"/> [C215] (C215): Bit 15 of network control word <p>The reference can be switched with the drive running. [Ref.1 channel] (Fr1) is active when the logic input or control word bit is at state 0. [Ref.2 channel] (Fr2) is active when the logic input or control word bit is at state 1.</p>		[ch1 active] (Fr1)
CHCF	[Profile] <p>(control channels separated from reference channels)</p> <p>Parameter can be accessed if [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [Not separ.] (SIM): Combined <input type="checkbox"/> [Separate] (SEP): Separate 		[Not separ.] (SIM)
Cd1 ★	[Cmd channel 1] <p>Parameter can be accessed if [Profile] (CHCF) = [Separate] (SEP), page 56, and [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [Terminal] (tEr): Control via terminals <input type="checkbox"/> [Local] (LOC): Control via keypad <input type="checkbox"/> [Remot. HMI] (LCC): Control via remote display terminal <input type="checkbox"/> [Modbus] (Mdb): Not applicable <input type="checkbox"/> [Com. card] (nEt): Control via the network 		[Terminal] (tEr) (1)
Cd2 ★	[Cmd channel 2] <p>Parameter can be accessed if [Profile] (CHCF) = [Separate] (SEP), page 56, and [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [Terminal] (tEr): Control via terminals <input type="checkbox"/> [Local] (LOC): Control via keypad <input type="checkbox"/> [Remot. HMI] (LCC): Control via remote display terminal <input type="checkbox"/> [Modbus] (Mdb): Not applicable <input type="checkbox"/> [Com. card] (nEt): Control via the network 		[Modbus] (Mdb) (2)

(1) When using X2X, the factory setting is changed automatically to [Com. card] (nEt).

(2) When using X2X, the factory setting is changed automatically to [Terminal] (tEr).



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.

[COMMAND] (CtL-) menu

Code	Description	Adjustment range	Factory setting
<div> <div>CCS</div> <div>★</div> <div> Cd1 Cd2 L11 L12 L13 L14 L15 L16 C111 C112 C113 C114 C115 C211 C212 C213 C214 C215 </div> </div>	<div> <input type="checkbox"/> [Cmd switching] </div> <p>Parameter can be accessed if [Profile] (CHCF) = [Separate] (SEP), page 56, and [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55.</p> <p>The [Cmd switching] (CCS) parameter can be used to select the [Cmd channel 1] (Cd1) or [Cmd channel 2] (Cd2) channel, or to configure a logic input or a control word bit for remote switching of [Cmd channel 1] (Cd1) or [Cmd channel 2] (Cd2).</p> <ul style="list-style-type: none"> <input type="checkbox"/> [ch1 active] (Cd1): Control channel = channel 1 <input type="checkbox"/> [ch2 active] (Cd2): Control channel = channel 2 <input type="checkbox"/> [L11] (L11): Logic input LI1 <input type="checkbox"/> [L12] (L12): Logic input LI2 <input type="checkbox"/> [L13] (L13): Logic input LI3 <input type="checkbox"/> [L14] (L14): Logic input LI4 <input type="checkbox"/> [L15] (L15): Not applicable <input type="checkbox"/> [L16] (L16): Not applicable <input type="checkbox"/> [C111] (C111): Not applicable <input type="checkbox"/> [C112] (C112): Not applicable <input type="checkbox"/> [C113] (C113): Not applicable <input type="checkbox"/> [C114] (C114): Not applicable <input type="checkbox"/> [C115] (C115): Not applicable <input type="checkbox"/> [C211] (C211): Bit 11 of network control word <input type="checkbox"/> [C212] (C212): Bit 12 of network control word <input type="checkbox"/> [C213] (C213): Bit 13 of network control word <input type="checkbox"/> [C214] (C214): Bit 14 of network control word <input type="checkbox"/> [C215] (C215): Bit 15 of network control word <p>Channel 1 is active when the input or control word bit is at state 0, Channel 2 is active when the input or control word bit is at state 1.</p>		[ch1 active] (Cd1)
<div> <div>COP</div> <div> nD SP Cd ALL </div> </div>	<div> <input type="checkbox"/> [Copy channel 1<>2] (copy only in this direction) </div> <div> <div>▲ DANGER</div> <div> UNINTENDED EQUIPMENT OPERATION Copying the command and/or reference can change the direction of rotation. <ul style="list-style-type: none"> Check that this is safe. Failure to follow these instructions will result in death or serious injury. </div> </div> <p>Parameter can be accessed if [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [No] (nO): No copy <input type="checkbox"/> [Reference] (SP): Copy reference <input type="checkbox"/> [Command] (Cd): Copy control <input type="checkbox"/> [Cmd + ref.] (ALL): Copy control and reference <ul style="list-style-type: none"> If channel 2 is controlled via the terminals, channel 1 control is not copied. If the channel 2 reference is set via AI2, AI3 or AIU1, the channel 1 reference is not copied. The reference copied is [Frequency ref.] (FrH) (before ramp), unless the channel 2 reference is set via +/- speed. In this case, the reference copied is [Output frequency] (rFr) (after ramp). <p>Note: Copying the control and/or reference can change the direction of rotation.</p>		[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.

[COMMAND] (CtL-) menu

REF -
SEt -
drC -
I_D -
CtL -
FUN -
FLt -
CON -
SUP -

Code	Description	Adjustment range	Factory setting
LCC nO YES	<input type="checkbox"/> [HMI command] Parameter can only be accessed using a remote display terminal, and for [ACCESS LEVEL] (LAC) = [Level 1] (L1) or [Level 2] (L2), page 55. <input type="checkbox"/> [No] (nO): Function inactive <input type="checkbox"/> [Yes] (YES): Enables control of the drive using the STOP/RESET, RUN and FWD/REV buttons on the display terminal. Here, the speed reference is given by the [HMI Frequency ref.] (LFr) parameter in the [SETTINGS] (SEt-) menu. Only the freewheel stop, fast stop and DC injection stop commands remain active on the terminals. If the drive/terminal connection is cut or if the terminal has not been connected, the drive detects a fault and locks in [MODBUS FAULT] (SLF).		[No] (nO)
PSt 2 s nO YES	<input type="checkbox"/> [Stop Key priority] This parameter can be used to activate or deactivate the stop button on the drive and the remote terminals. The stop button will be deactivated if the active control channel is different from that on the integrated display terminal or remote terminals. <div style="border: 1px solid black; padding: 5px; text-align: center;"> ⚠ WARNING LOSS OF CONTROL You are going to disable the stop button located on the drive and remote display. Do not select "nO" unless exterior stopping methods exist. Failure to follow these instructions can result in death, serious injury, or equipment damage. </div> <input type="checkbox"/> [No] (nO): Function inactive <input type="checkbox"/> [Yes] (YES): STOP key priority		[Yes] (YES)
rDt dFr drS bOt	<input type="checkbox"/> [Rotating direction] This parameter is only visible if [Ref.1 channel] (Fr1), page 26, or [Ref.2 channel] (Fr2), page 55, are assigned to LCC . Direction of operation authorized for the RUN key on the keypad or the RUN key on the remote display terminal. <input type="checkbox"/> [Forward] (dFr): Forward <input type="checkbox"/> [Reverse] (drS): Reverse <input type="checkbox"/> [Both] (bOt): Both directions are authorized		[Forward] (dFr)
SCS 2 s	<input type="checkbox"/> [Saving config.] See page 42.	(1)	nO
CFG 2 s	<input type="checkbox"/> [Macro configuration] See page 42.	(1)	Std
FCS 2 s	<input type="checkbox"/> [Restore config.] See page 43.	(1)	nO

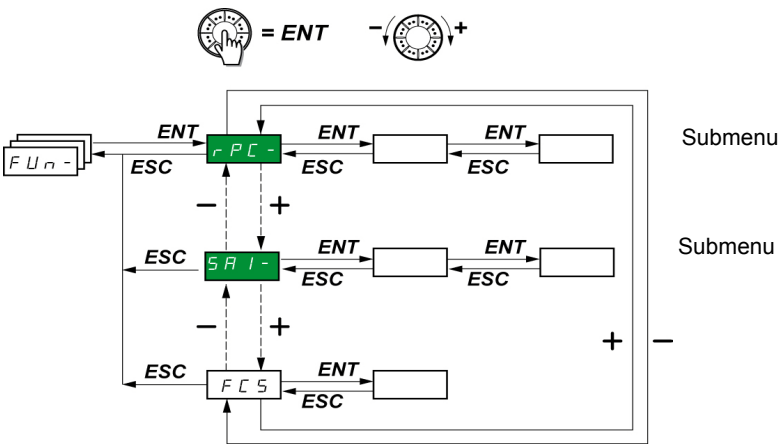
(1) [Saving config.] (SCS), [Macro configuration] (CFG), and [Restore config.] (FCS) can be accessed from several configuration menus, but they apply to all menus and parameters.



The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
I_D -
CtL -
FUn -
FLt -
CON -
SUP -

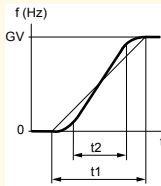
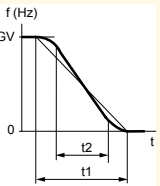
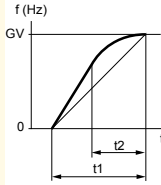
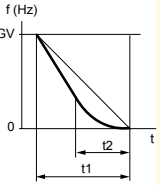
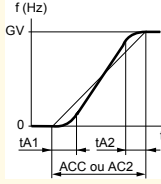
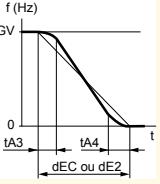


The parameters can only be modified when the drive is stopped and no run command is present.

Some functions have numerous parameters. In order to clarify programming and avoid having to scroll through endless parameters, these functions have been grouped in submenus.

Like menus, submenus are identified by a dash after their code: **PSS -** for example.

Note: There may be an incompatibility between functions (see the incompatibility table, page 18). In this case, the first function configured will prevent the remainder being configured.

Code	Name/Description	Adjustment range	Factory setting
rPC -	■ [RAMPS]		
rPt	□ [Ramp type]		[Linear] (LIn)
LIn	Defines the shape of the acceleration and deceleration ramps		
S	□ [Linear] (LIn): Linear		
U	□ [S ramp] (S): S ramp		
CUS	□ [U ramp] (U): U ramp		
	□ [Customized] (CUS): Customized		
	<div><div>S ramps</div><div><div></div><div></div></div><div>The rounding coefficient is fixed, where $t2 = 0.6 \times t1$ and $t1 =$ set ramp time.</div></div>		
	<div><div>U ramps</div><div><div></div><div></div></div><div>The rounding coefficient is fixed, where $t2 = 0.5 \times t1$ and $t1 =$ set ramp time.</div></div>		
	<div><div>Customized ramps</div><div><div></div><div></div></div><div><div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div><div>ACC ou AC2</div><div>dEC ou dE2</div></div><div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div><div>ACC ou AC2</div><div>dEC ou dE2</div></div>	<div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div> <div>ACC ou AC2</div> <div>dEC ou dE2</div> <div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div> <div>ACC ou AC2</div> <div>dEC ou dE2</div>	<div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div> <div>ACC ou AC2</div> <div>dEC ou dE2</div> <div><div>tA1</div><div>tA2</div><div>tA3</div><div>tA4</div></div> <div>ACC ou AC2</div> <div>dEC ou dE2</div>

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
I.D -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
rPC -	■ [RAMPS] (continued)		
EA1 ★	□ [Begin Acc round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to 100	10
EA2 ★	□ [End Acc round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to (100-tA1)	10
EA3 ★	□ [Begin Dec round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to 100	10
EA4 ★	□ [End Dec round] Parameter can be accessed if the [Ramp type] (rPt) = [Customized] (CUS), page 59.	0 to (100-tA3)	10
Inr 0.01 0.1 1	□ [Ramp increment] □ [0.01] (0.01): Ramp can be set between 0.05 s and 327.6 s. □ [0.1] (0.1): Ramp can be set between 0.1 s and 3,276 s. □ [1] (1): Ramp can be set between 1 s and 32,760 s (1). This parameter applies to the [Acceleration] (ACC), [Deceleration] (dEC), [Acceleration 2] (AC2), and [Deceleration 2] (dE2) parameters. Note: Changing the [Ramp increment] (Inr) parameter causes the settings for the [Acceleration] (ACC), [Deceleration] (dEC), [Acceleration 2] (AC2), and [Deceleration 2] (dE2) parameters to be modified as well.	0.01 - 0.1 - 1	0.1
ACC dEC	□ [Acceleration] (2) □ [Deceleration] Defined to accelerate/decelerate between 0 and the nominal frequency [Rated motor freq.] (FrS) (parameter in the [MOTOR CONTROL] (drC-) menu). Check that the value for [Deceleration] (dEC) is not too low in relation to the load to be stopped.	In accordance with Inr, page 60	3 s 3 s

(1) When values higher than 9,999 are displayed on the drive or on the remote display terminal, a point is inserted after the thousands digit.

Note:

This type of display can lead to confusion between values which have two digits after a decimal point and values higher than 9,999. Check the value of the [Ramp increment] (Inr) parameter.

Example:

- If [Ramp increment] (Inr) = 0.01, the value 15.65 corresponds to a setting of 15.65 s
- If [Ramp increment] (Inr) = 1, the value 15.65 corresponds to a setting of 15,650 s

(2) Parameter can also be accessed in the [SETTINGS] (SEt-) menu.



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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting															
rPC -	■ [RAMPS] (continued)																	
rPS	<div><input type="checkbox"/> [Ramp switch ass.]</div> <div>This function remains active regardless of the control channel.</div> <div><div><input type="checkbox"/> [No] (nO): Not assigned</div><div><input type="checkbox"/> [LI1] (LI1): Logic input LI1</div><div><input type="checkbox"/> [LI2] (LI2): Logic input LI2</div><div><input type="checkbox"/> [LI3] (LI3): Logic input LI3</div><div><input type="checkbox"/> [LI4] (LI4): Logic input LI4</div><div><input type="checkbox"/> [LI5] (LI5): Not applicable</div><div><input type="checkbox"/> [LI6] (LI6): Not applicable</div></div> <div>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible:</div> <div><div><input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network</div><div><input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network</div><div><input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network</div><div><input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network</div><div><input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network</div></div> <div>[Acceleration] (ACC) and [Deceleration] (dEC) are enabled when the logic input or control word bit is at state 0.</div> <div>[Acceleration 2] (AC2) and [Deceleration 2] (dE2) are enabled when the logic input or control word bit is at state 1.</div>	[No] (nO)																
FrE	<div><input type="checkbox"/> [Ramp 2 threshold]</div> <div>The 2nd ramp is switched if [Ramp 2 threshold] (FrE) is not 0 (the value 0 corresponds to the inactive function) and the output frequency is higher than [Ramp 2 threshold] (FrE).</div> <div>Threshold ramp switching can be combined with switching via LI or bit as follows:</div> <table><thead><tr><th>LI or bit</th><th>Frequency</th><th>Ramp</th></tr></thead><tbody><tr><td>0</td><td><FrE</td><td>ACC, dEC</td></tr><tr><td>0</td><td>>FrE</td><td>AC2, dE2</td></tr><tr><td>1</td><td><FrE</td><td>AC2, dE2</td></tr><tr><td>1</td><td>>FrE</td><td>AC2, dE2</td></tr></tbody></table>	LI or bit	Frequency	Ramp	0	<FrE	ACC, dEC	0	>FrE	AC2, dE2	1	<FrE	AC2, dE2	1	>FrE	AC2, dE2	0 to 500 Hz	0 Hz
LI or bit	Frequency	Ramp																
0	<FrE	ACC, dEC																
0	>FrE	AC2, dE2																
1	<FrE	AC2, dE2																
1	>FrE	AC2, dE2																
AC2	<div><input type="checkbox"/> [Acceleration 2]</div> <div>(1)</div> <div>Parameter can be accessed if [Ramp 2 threshold] (FrE) > 0, page 61, or if [Ramp switch ass.] (rPS) is assigned, page 61.</div>	In accordance with Inr, page 60	5															
dE2	<div><input type="checkbox"/> [Deceleration 2]</div> <div>(1)</div> <div>Parameter can be accessed if [Ramp 2 threshold] (FrE) > 0, page 61, or if [Ramp switch ass.] (rPS) is assigned, page 61.</div>	In accordance with Inr, page 60	5															
brA	<div><input type="checkbox"/> [Dec ramp adapt.]</div> <div>Activating this function automatically adapts the deceleration ramp, if this has been set at too low a value for the inertia of the load.</div> <div><div><input type="checkbox"/> [No] (nO): Function inactive</div><div><input type="checkbox"/> [Yes] (YES): Function active. The function is incompatible with applications requiring:</div><div><div>• Positioning on a ramp</div><div>• The use of a braking resistor (the resistor would not operate correctly)</div></div><div>[Dec ramp adapt.] (brA) is forced to [No] (nO) if brake control [Brake assignment] (bLC) is assigned, page 81.</div></div>	[Yes] (YES)																

(1) Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

REF -
SEt -
drC -
I_D -
CLL -
FUn -
FLt -
CDn -
SUP -

Code	Name/Description	Adjustment range	Factory setting
StC -	■ [STOP MODES]		
Stt	□ [Type of stop] Stop mode on disappearance of the run command or appearance of a stop command. <input type="checkbox"/> [Ramp stop] (rMP): On ramp <input type="checkbox"/> [Fast stop] (FSt): Fast stop <input type="checkbox"/> [Freewheel] (nST): Freewheel stop <input type="checkbox"/> [DC injection] (dCI): DC injection stop		[Ramp stop] (rMP)
rMP FSt nST dCI			
FSt	□ [Fast stop] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network The stop is activated when the logic state of the input changes to 0 and the control word bit changes to 1. The fast stop is a stop on a reduced ramp via the [Ramp divider] (dCF) parameter. If the input falls back to state 1 and the run command is still active, the motor will only restart if 2-wire level control has been configured [2/3 wire control] (tCC) = [2 wire] (2C), and [2 wire type] (tCt) = [Level] (LEL) or [Fwd priority] (PFO), page 44. In other cases, a new run command must be sent.		[No] (nO)
nO LI1 LI2 LI3 LI4 LI5 LI6 CD11 CD12 CD13 CD14 CD15			
dCF	□ [Ramp divider] Parameter can be accessed when [Type of stop] (Stt) = [Fast stop] (FSt), page 62, and when [Fast stop] (FSt) is not [No] (nO), page 62. Ensure that the reduced ramp is not too low in relation to the load to be stopped. The value 0 corresponds to the minimum ramp.	0 to 10	4
★			

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
SEt -	[STOP MODES] (continued)		
dCI	<input type="checkbox"/> [DC injection assign.]		[No] (nO)
nO	<p>Note 1: This function is incompatible with the "Brake control" function (see page 18).</p> <p>Note 2: The DC injection stop is not effective when the drive is stopped with the JOG function activated.</p> <p><input type="checkbox"/> [No] (nO): Not assigned</p> <p><input type="checkbox"/> [LI1] (LI1): Logic input LI1</p> <p><input type="checkbox"/> [LI2] (LI2): Logic input LI2</p> <p><input type="checkbox"/> [LI3] (LI3): Logic input LI3</p> <p><input type="checkbox"/> [LI4] (LI4): Logic input LI4</p> <p><input type="checkbox"/> [LI5] (LI5): Not applicable</p> <p><input type="checkbox"/> [LI6] (LI6): Not applicable</p> <p>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible:</p> <p><input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network</p> <p><input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network</p> <p><input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network</p> <p><input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network</p> <p><input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network</p> <p>Braking is activated when the logic state of the input or control word bit is at 1.</p>		
L11			
L12			
L13			
L14			
L15			
L16			
CD11			
CD12			
CD13			
CD14			
CD15			
IdC	<input type="checkbox"/> [DC inject. level 1]	(1)(3)	0 to In (2)
★	<p>Parameter can be accessed if [Type of stop] (Stt) = [DC injection] (dCI), page 62, or if [DC injection assign.] (dCI) is not set to [No] (nO), page 63.</p> <p>After 5 seconds, the injection current is limited to 0.5 [Mot. therm. current] (ItH) if set to a higher value.</p>		
	<p>CAUTION</p> <p>RISK OF DAMAGE TO MOTOR</p> <ul style="list-style-type: none"> Check that the motor will withstand this current without overheating. <p>Failure to follow these instructions can result in equipment damage.</p>		

(1)Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

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

(3)**Note:** These settings are not related to the "automatic standstill DC injection" function.

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
StC -	■ [STOP MODES] (continued)		
StC ★	<input type="checkbox"/> [DC injection time 2] (1)(2) Parameter can be accessed if [Type of stop] (Stt) = [DC injection] (dCI) , page 62.	0.1 to 30 s	0.5 s
	<div style="text-align: center;">CAUTION</div> <div> RISK OF DAMAGE TO MOTOR <ul style="list-style-type: none"> Long periods of DC injection braking can cause overheating and damage the motor. Protect the motor by avoiding long periods of DC injection braking. </div> <div> Failure to follow these instructions can result in equipment damage. </div>		
nSt nD L I 1 L I 2 L I 3 L I 4 L I 5 L I 6	<input type="checkbox"/> [Freewheel stop ass.] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable The stop is activated when the logic state of the input is at 0. If the input falls back to state 1 and the run command is still active, the motor will only restart if 2-wire level control has been configured. In other cases, a new run command must be sent.		[No] (nO)

(1)Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

(2)**Note:** These settings are not related to the "automatic standstill DC injection" function.

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
AdC -	■ [AUTO DC INJECTION]		
AdC	<div> <input type="checkbox"/> [Auto DC injection] [Yes] (YES) </div> <p>If set to [Continuous] (Ct), this parameter causes injection current to be generated, even when there is no run command. This is not compatible with [Auto tuning] (tUn) = [Drv running] (rUn). This parameter can be changed at any time.</p> <div> ⚡ ⚡ DANGER HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH When [Auto DC injection] (AdC) = [Continuous] (Ct), the injection of current is done even if a run command has not been sent. <ul style="list-style-type: none"> Check this action will not endanger personnel or equipment in any way Failure to follow these instructions will result in death or serious injury. </div> <div> ⚠ WARNING NO HOLDING TORQUE <ul style="list-style-type: none"> DC injection braking does not provide any holding torque at zero speed. DC injection braking does not work when there is a loss of power or when the drive detects a fault. Where necessary, use a separate brake to maintain torque levels. Failure to follow these instructions can result in death, serious injury, or equipment damage. </div> <div> <input type="checkbox"/> [No] (nO): No injection <input type="checkbox"/> [Yes] (YES): Standstill injection for adjustable period <input type="checkbox"/> [Continuous] (Ct): Continuous standstill injection </div>		
EdC1 ★	<div> <input type="checkbox"/> [Auto DC inj. time 1] (1) 0.1 to 30 s 0.5 s </div> <p>Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65.</p> <div> CAUTION RISK OF DAMAGE TO MOTOR <ul style="list-style-type: none"> Long periods of DC injection braking can cause overheating and damage the motor. Protect the motor by avoiding long periods of DC injection braking. Failure to follow these instructions can result in equipment damage. </div>		
SdC1 ★	<div> <input type="checkbox"/> [Auto DC inj. level 1] (1) 0 to 1.2 In (2) 0.7 In (2) </div> <p>Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65.</p> <div> CAUTION RISK OF DAMAGE TO MOTOR <ul style="list-style-type: none"> Check that the motor will withstand this current without overheating. Failure to follow these instructions can result in equipment damage. </div>		

(1)Parameter can also be accessed in the **[SETTINGS] (SEt-)** menu.

(2)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.

[APPLICATION FUNCT.] (FUn-) menu

REF -
SEt -
drC -
l_o -
CtL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting																		
AdC - ■ [AUTO DC INJECTION] (continued)																					
tdC2 ★	<div><input type="checkbox"/> [Auto DC inj. time 2] (1)</div> <div>Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65.</div> <div><div>CAUTION</div><div>RISK OF DAMAGE TO MOTOR<ul style="list-style-type: none">Long periods of DC injection braking can cause overheating and damage the motor.Protect the motor by avoiding long periods of DC injection braking.Failure to follow these instructions can result in equipment damage.</div></div>	0 to 30 s	0 s																		
sdC2 ★	<div><input type="checkbox"/> [Auto DC inj. level 2] (1)</div> <div>Parameter can be accessed if [Auto DC injection] (AdC) is not set to [No] (nO), page 65.</div> <div><div>CAUTION</div><div>RISK OF DAMAGE TO MOTOR<ul style="list-style-type: none">Check that the motor will withstand this current without overheating.Failure to follow these instructions can result in equipment damage.</div></div>	0 to 1.2 In (2)	0.5 In (2)																		
<table><tr><th>AdC</th><th>sdC2</th><th>Operation</th></tr><tr><td>YES</td><td>x</td><td></td></tr><tr><td>Ct</td><td>≠ 0</td><td></td></tr><tr><td>Ct</td><td>= 0</td><td></td></tr><tr><td colspan="2">Run command</td><td></td></tr><tr><td colspan="2">Speed</td><td></td></tr></table>				AdC	sdC2	Operation	YES	x		Ct	≠ 0		Ct	= 0		Run command			Speed		
AdC	sdC2	Operation																			
YES	x																				
Ct	≠ 0																				
Ct	= 0																				
Run command																					
Speed																					

(1)Parameter can also be accessed in the **[SETTINGS]** (SEt-) menu.

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

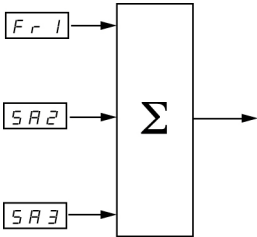
★ These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and set from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
SA 1 -	<div><div>[SUMMING INPUTS]</div><div>Can be used to sum one or two inputs to the [Ref.1 channel] (Fr1) reference only. Note: The "Summing inputs" function may be incompatible with other functions (see page 18).</div></div>		
SA 2	<div><div><input type="checkbox"/> [Summing ref. 2]</div><div><input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [AI1] (AI1): Not applicable <input type="checkbox"/> [AI2] (AI2): Analog input AI2 <input type="checkbox"/> [AI3] (AI3): Analog input AI3 <input type="checkbox"/> [AI Virtual 1] (AIV1): Jog dial</div><div>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [HMI] (LCC): Reference via the remote display terminal, [HMI Frequency ref.] (LFr) parameter in the [SETTINGS] (SEt-) menu, page 29. <input type="checkbox"/> [Modbus] (Mdb): Not applicable <input type="checkbox"/> [Com. card] (nEt): Reference via network</div></div>		[AI2] (AI2) (1)
SA 3	<div><div><input type="checkbox"/> [Summing ref. 3]</div><div><input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [AI1] (AI1): Not applicable <input type="checkbox"/> [AI2] (AI2): Analog input AI2 <input type="checkbox"/> [AI3] (AI3): Analog input AI3 <input type="checkbox"/> [AI Virtual 1] (AIV1): Jog dial</div><div>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [HMI] (LCC): Reference via the remote display terminal, [HMI Frequency ref.] (LFr) parameter in the [SETTINGS] (SEt-) menu, page 29. <input type="checkbox"/> [Modbus] (Mdb): Not applicable <input type="checkbox"/> [Com. card] (nEt): Reference via network</div></div>		[No] (nO)

(1) When using X2X, the factory setting is changed automatically to [No] (nO).

Summing inputs



Note:
AI2 is a ± 10 V input which can be used for subtraction by summing a negative signal.

See the complete block diagrams on pages 50 and 52.

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
I_O -
CLL -
FUn -

Preset speeds

2, 4, 8 or 16 speeds can be preset, requiring 1, 2, 3 or 4 logic inputs respectively.

The following assignment order must be observed: [2 preset speeds] (PS2), then [4 preset speeds] (PS4), then [8 preset speeds] (PS8), then [16 preset speeds] (PS16).

FLt - Combination table for preset speed inputs

CDn -
SUP -

16 speeds LI (PS16)	8 speeds LI (PS8)	4 speeds LI (PS4)	2 speeds LI (PS2)	Speed reference
0	0	0	0	Reference (1)
0	0	0	1	SP2
0	0	1	0	SP3
0	0	1	1	SP4
0	1	0	0	SP5
0	1	0	1	SP6
0	1	1	0	SP7
0	1	1	1	SP8
1	0	0	0	SP9
1	0	0	1	SP10
1	0	1	0	SP11
1	0	1	1	SP12
1	1	0	0	SP13
1	1	0	1	SP14
1	1	1	0	SP15
1	1	1	1	SP16

(1) See the block diagrams on page 50 and page 52: Reference 1 = (SP1).

Note: If Fr1 = LCC and rPI= nO, then PI reference (%) = 10 * AI (Hz) / 15

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
P55 -	[PRESET SPEEDS] Note 1: The "Preset speeds" function may be incompatible with other functions (see page 18). Note 2: This function can only be used with 8I64*****.00C-1 references.		
P52	<input type="checkbox"/> [2 preset speeds] Selecting the assigned logic input activates the function. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network		[LI3] (LI3) (1)
P54	<input type="checkbox"/> [4 preset speeds] Selecting the assigned logic input activates the function. Ensure that [2 preset speeds] (PS2) has been assigned before assigning [4 preset speeds] (PS4). <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network		[LI4] (LI4) (1)
P58	<input type="checkbox"/> [8 preset speeds] Selecting the assigned logic input activates the function. Ensure that [4 preset speeds] (PS4) has been assigned before assigning [8 preset speeds] (PS8). <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network		[No] (nO)

(1) When using X2X, the factory setting is changed automatically to [No] (nO).

[APPLICATION FUNCT.] (FUn-) menu

REF -
SEt -
drC -
I.D -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
P55 -	■ [PRESET SPEEDS] (continued)		
P516	<div><input type="checkbox"/> [16 preset speeds]</div> <div>Selecting the assigned logic input activates the function. Ensure that [8 preset speeds] (PS8) has been assigned before assigning [16 preset speeds] (PS16).</div> <div><div><input type="checkbox"/> [No] (nO): Not assigned</div><div><input type="checkbox"/> [LI1] (LI1): Logic input LI1</div><div><input type="checkbox"/> [LI2] (LI2): Logic input LI2</div><div><input type="checkbox"/> [LI3] (LI3): Logic input LI3</div><div><input type="checkbox"/> [LI4] (LI4): Logic input LI4</div><div><input type="checkbox"/> [LI5] (LI5): Not applicable</div><div><input type="checkbox"/> [LI6] (LI6): Not applicable</div></div> <div>If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible:</div> <div><div><input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network</div><div><input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network</div><div><input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network</div><div><input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network</div><div><input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network</div></div>	[No] (nO)	
SP2 ★	<div><input type="checkbox"/> [Preset speed 2]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	10 Hz
SP3 ★	<div><input type="checkbox"/> [Preset speed 3]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	15 Hz
SP4 ★	<div><input type="checkbox"/> [Preset speed 4]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	20 Hz
SP5 ★	<div><input type="checkbox"/> [Preset speed 5]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	25 Hz
SP6 ★	<div><input type="checkbox"/> [Preset speed 6]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	30 Hz
SP7 ★	<div><input type="checkbox"/> [Preset speed 7]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	35 Hz
SP8 ★	<div><input type="checkbox"/> [Preset speed 8]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	40 Hz
SP9 ★	<div><input type="checkbox"/> [Preset speed 9]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	45 Hz
SP10 ★	<div><input type="checkbox"/> [Preset speed 10]</div> <div>(1)</div>	0.0 to 500.0 Hz (2)	50 Hz

(1)Parameter can also be accessed in the **[SETTINGS] (SEt-)** menu. This parameter will depend on how many speeds have been configured.

(2)Reminder: The speed remains limited by the **[High speed] (HSP)** parameter, page 30.


★ 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
P55 -	■ [PRESET SPEEDS] (continued)		
SP11 ★	<input type="checkbox"/> [Preset speed 11] (1)	0.0 to 500.0 Hz (2)	55 Hz
SP12 ★	<input type="checkbox"/> [Preset speed 12] (1)	0.0 to 500.0 Hz (2)	60 Hz
SP13 ★	<input type="checkbox"/> [Preset speed 13] (1)	0.0 to 500.0 Hz (2)	70 Hz
SP14 ★	<input type="checkbox"/> [Preset speed 14] (1)	0.0 to 500.0 Hz (2)	80 Hz
SP15 ★	<input type="checkbox"/> [Preset speed 15] (1)	0.0 to 500.0 Hz (2)	90 Hz
SP16 ★	<input type="checkbox"/> [Preset speed 16] (1)	0.0 to 500.0 Hz (2)	100 Hz

(1)Parameter can also be accessed in the [SETTINGS] (SEt-) menu. This parameter will depend on how many speeds have been configured.

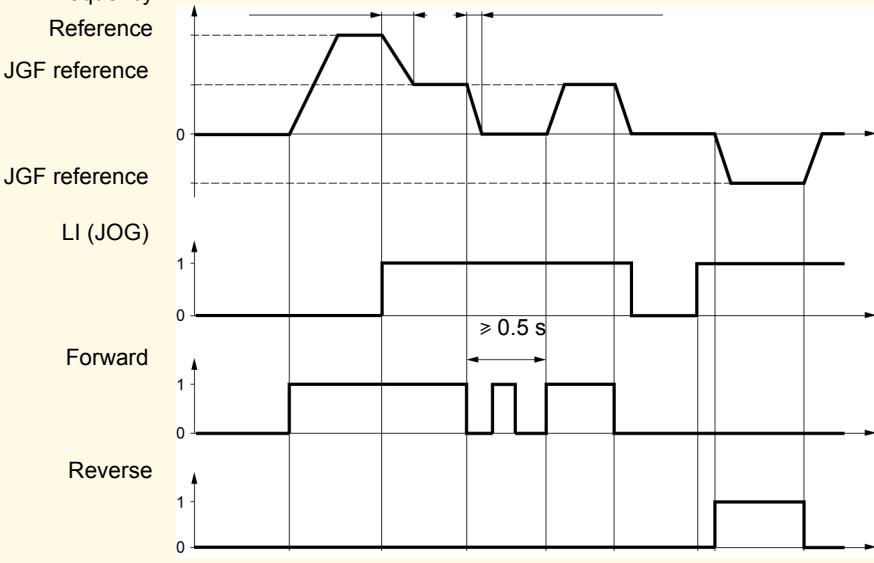
(2)Reminder: The speed remains limited by the [High speed] (HSP) parameter, page 30.



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.

[APPLICATION FUNCT.] (FUn-) menu

REF -
SEt -
drC -
I.D -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
JOG -	<div><div>■ [JOG]</div><div>Note: The "Jog operation" function may be incompatible with other functions (see page 18).</div></div>		
JOG	<div><div>□ [JOG]</div><div>Selecting the assigned logic input activates the function.</div><div><div><input type="checkbox"/> [No] (nO): Not assigned</div><div><input type="checkbox"/> [LI1] (LI1): Logic input LI1</div><div><input type="checkbox"/> [LI2] (LI2): Logic input LI2</div><div><input type="checkbox"/> [LI3] (LI3): Logic input LI3</div><div><input type="checkbox"/> [LI4] (LI4): Logic input LI4</div><div><input type="checkbox"/> [LI5] (LI5): Not applicable</div><div><input type="checkbox"/> [LI6] (LI6): Not applicable</div></div><div>Example: 2-wire control operation ([2/3 wire control] (tCC) = [2 wire] (2C))</div><div><div><div>Motor frequency</div><div>Reference</div><div>JGF reference</div><div>JGF reference</div><div>LI (JOG)</div><div>Forward</div><div>Reverse</div></div><div><div>Ramp dEC/dE2</div><div>Ramp forced to 0.1 s</div></div></div><div><div>JGF</div><div>★</div></div></div>		[No] (nO)
	<div><div>□ [Jog frequency] (1)</div><div>Parameter can be accessed if [JOG] (JOG) is not set to [No] (nO), page 72.</div></div>	0 to 10 Hz	10 Hz

(1)Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

★

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.

+/- speed

Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55.
Two types of operation are available.

1. Use of single action buttons:

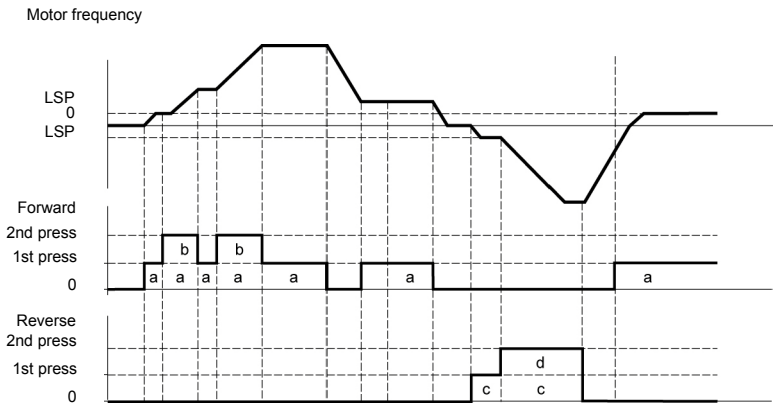
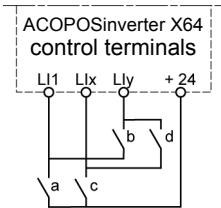
Two logic inputs are required in addition to the direction(s) of operation.
The input assigned to the "+ speed" command increases the speed, the input assigned to the "- speed" command decreases the speed.
Note:
If the "+ speed" and "- speed" commands are activated at the same time, "- speed" will be given priority.
2. Use of double action buttons:

Only one logic input assigned to "+ speed" is required.
Description: 1 button pressed twice for each direction of rotation. Each action closes a contact.

	Released (- speed)	1st press (speed maintained)	2nd press (+ speed)
Forward button	–	a	a and b
Reverse button	–	c	c and d

Wiring example:

Ll1: Forward
Llx: Reverse
Lly: + speed



This type of +/- speed is incompatible with 3-wire control.

Whichever type of operation is selected, the max. speed is set by the [High speed] (HSP) parameter, page 30.

Note:
If the reference is switched via [Ref. 2 switching] (rFC), page 56, from one reference channel to any other reference channel with "+/- speed", the value of the [Output frequency] (rFr) reference (after ramp) is copied at the same time. This prevents the speed being incorrectly reset to zero when switching takes place.

[APPLICATION FUNCT.] (FUn-) menu

REF -
Set -
drC -
LD -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
UPd -	■ [+/- SPEED] (motorized jog dial) Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), and [+/-spd HMI] (UPdH) or [+/- SPEED] (UPdt) selected, page 55. Note: The "+/- speed" function is incompatible with several functions (see page 18). It can only be configured if these functions are unassigned, in particular the summing inputs (set [Summing ref. 2] (SA2) to [No] (nO), page 67) and the preset speeds (set [2 preset speeds] (PS2) and [4 preset speeds] (PS4) to [No] (nO), page 69) which will have been assigned as part of the factory settings.		
USP ★ nO L 11 L 12 L 13 L 14 L 15 L 16	□ [+ speed assignment] Parameter accessible for [+/- SPEED] (UPdt) only. Selecting the assigned logic input activates the function. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable		[No] (nO)
dSP ★ nO L 11 L 12 L 13 L 14 L 15 L 16	□ [-Speed assignment] Parameter accessible for [+/- SPEED] (UPdt) only. Selecting the assigned logic input activates the function. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable		[No] (nO)
SEr ★ nO rAM EEP	□ [Reference saved] Associated with the "+/- speed" function, this parameter can be used to save the reference: <ul style="list-style-type: none"> • When the run commands disappear (saved to RAM) • When the line supply or the run commands disappear (saved to EEPROM) Therefore, the next time the drive starts up, the speed reference is the last reference saved. <input type="checkbox"/> [No] (nO): No saving <input type="checkbox"/> [RAM] (rAM): Saving in RAM <input type="checkbox"/> [EEProm] (EEP): Saving in EEPROM		[No] (nO)



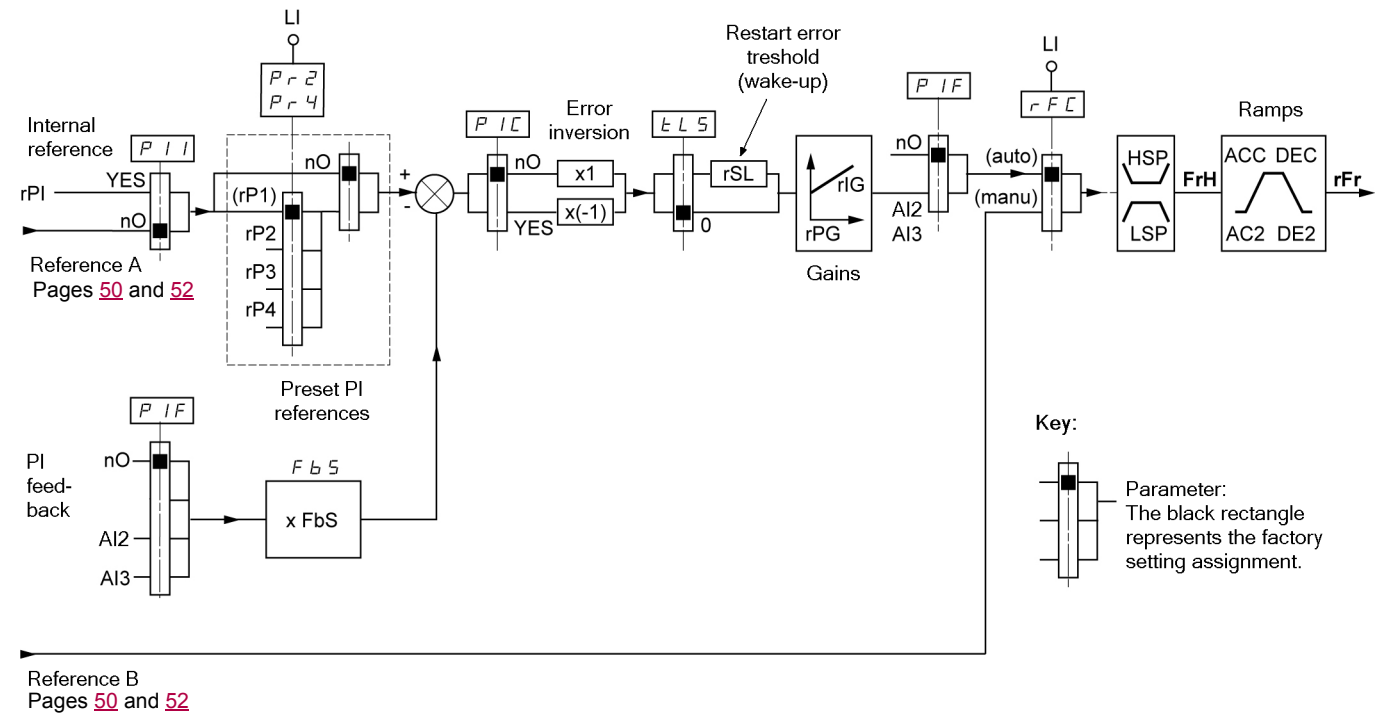
These parameters only appear if the corresponding function has been selected in another menu. When the parameters can also be accessed and set from within the configuration menu for the corresponding function, their description is detailed in these menus, on the pages indicated, to aid programming.

PI regulator

Note: This function can only be used with 8I64*****.00C-1 references.

Block diagram

The function is activated by assigning an analog input to the PI feedback (measurement).



PI feedback:

PI feedback must be assigned to one of these analog inputs, AI2 or AI3.

PI reference:

The PI reference can be assigned to the following parameters in order of priority:

- Preset references via logic inputs, [Preset ref. PID 2] (rP2), [Preset ref. PID 3] (rP3), and [Preset ref. PID 4] (rP4), page 78
- Internal reference [Internal PID ref.] (rPI), page 79
- Reference [Ref.1 channel] (Fr1), page 55

Combination table for preset PI references

LI (Pr4)	LI (Pr2)	Pr2 = nO	Reference
0	0		rPI or Fr1
0	1		rP2
1	0		rP3
1	1		rP4

Parameters can also be accessed in the [SETTINGS] (SEt-) menu:

- [Internal PID ref.] (rPI), page 29
- [Preset ref. PID 2] (rP2), [Preset ref. PID 3] (rP3), and [Preset ref. PID 4] (rP4), page 33
- [PID prop. gain] (rPG), page 33
- [PID integral gain] (rIG), page 33
- [PID fbk scale factor] (FbS), page 33:

The [PID fbk scale factor] (FbS) parameter can be used to scale the reference according to the variation range for PI feedback (sensor rating).

Example: Regulating pressure

PI reference (process) 0-5 bar (0-100%)

Rating of pressure sensor 0-10 bar

[PID fbk scale factor] (FbS) = max. sensor scaling/max. process

[PID fbk scale factor] (FbS) = 10/5 = 2

- [PID wake up thresh.] (rSL), page 35:

Can be used to set the PI error threshold above which the PI regulator will be reactivated (wake-up) after a stop due to the max. time threshold being exceeded at low speed [Low speed time out] (tLS)

- [PID correct. reverse] (PIC), page 33: If [PID correct. reverse] (PIC) = [No] (nO), the speed of the motor will increase when the error is positive (example: pressure control with a compressor). If [PID correct. reverse] (PIC) = [Yes] (YES), the speed of the motor will decrease when the error is positive (example: temperature control using a cooling fan).

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
I_D -
CLL -
FUn -
FLt -
CON -
SUP -

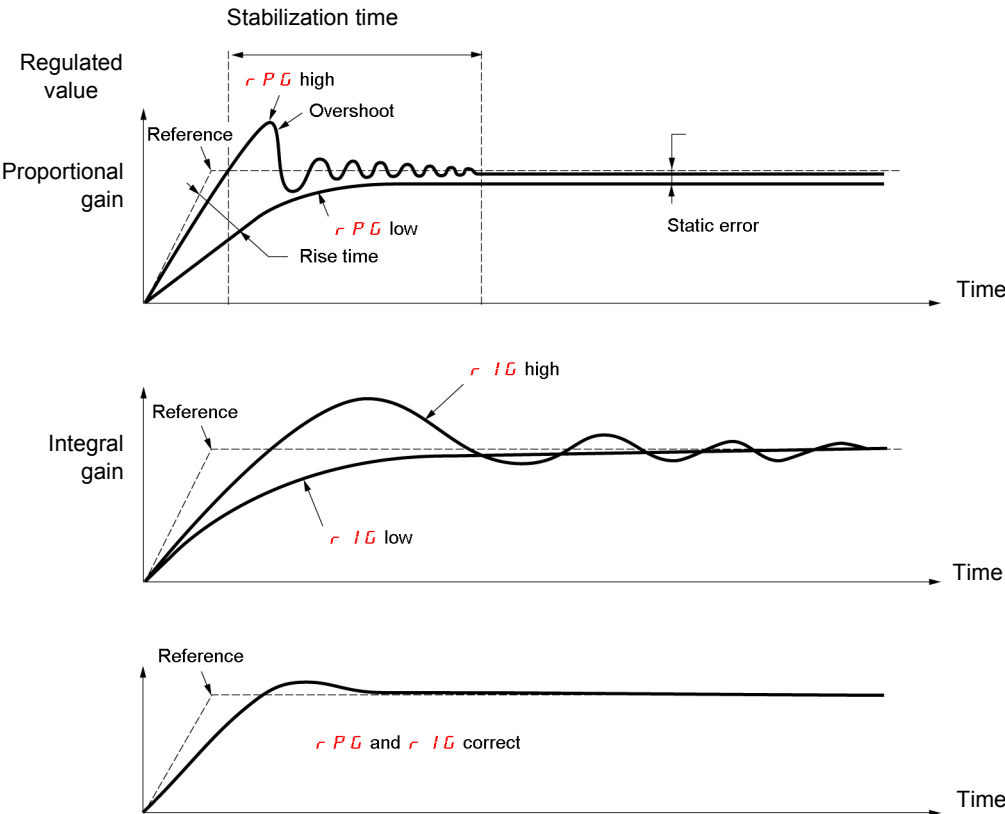
"Manual - Automatic" operation with PI

This function combines the PI regulator and [Ref. 2 switching] (rFC) reference switching, page 56. The speed reference is given by [Ref.2 channel] (Fr2) or by the PI function, depending on the state of the logic input.

Setting up the PI regulator

- 1. Configuration in PI mode
See the block diagram on page 75.
- 2. Perform a test in factory settings mode (in most cases, this will be sufficient).
To optimize the drive, adjust [PID prop. gain.] (rPG) or [PID integral gain] (rIG) gradually and independently, and observe the effect on the PI feedback in relation to the reference.
- 3. If the factory settings are unstable or the reference is incorrect:
Perform a test with a speed reference in manual mode (without PI regulator) and with the drive on load for the speed range of the system:
 - In steady state, the speed must be stable and comply with the reference, and the PI feedback signal must be stable.
 - In transient state, the speed must follow the ramp and stabilize quickly, and the PI feedback must follow the speed.If this is not the case, see the settings for the drive and/or sensor signal and cabling.

Switch to PI mode.
Set [Dec ramp adapt.] (brA) to no (no auto-adaptation of the ramp).
Set the [Acceleration] (ACC) and [Deceleration] (dEC) speed ramps to the minimum level permitted by the mechanics without triggering an [OVERBRAKING] (ObF) fault.
Set the integral gain [PID integral gain] (rIG) to the minimum level.
Observe the PI feedback and the reference.
Switch the drive ON/OFF repeatedly or quickly vary the load or reference a number of times.
Set the proportional gain [PID prop. gain.] (rPG) in order to ascertain a good compromise between response time and stability in transient phases (slight overshoot and 1 to 2 oscillations before stabilizing).
If the reference varies from the preset value in steady state, gradually increase the integral gain [PID integral gain] (rIG), reduce the proportional gain [PID prop. gain.] (rPG) in the event of instability (pump applications), and find a compromise between response time and static precision (see diagram).
Perform in-production tests over the whole reference range.



The oscillation frequency depends on the system dynamics.

Parameter	Rise time	Overshoot	Stabilization time	Static error
[PID prop. gain] (rPG)	↗	↘	=	↘
[PID integral gain] (rIG)	↗	↗	↗	↘

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
P I -	■ [PI REGULATOR] Note: The "PI regulator" function is incompatible with several functions (see page 18). It can only be configured if these functions are unassigned, in particular the summing inputs (set [Summing ref. 2] (SA2) to [No] (nO), page 67) and the preset speeds (set [2 preset speeds] (PS2) and [4 preset speeds] (PS4) to [No] (nO), page 69) which will have been assigned as part of the factory settings.		
P I F n O A I 1 A I 2 A I 3	<input type="checkbox"/> [PID feedback ass.] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [AI1] (AI1): Not applicable <input type="checkbox"/> [AI2] (AI2): Analog input AI2 <input type="checkbox"/> [AI3] (AI3): Analog input AI3		[No] (nO)
r P G ★	<input type="checkbox"/> [PID prop. gain] (1) Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. It provides dynamic performance when PI feedback is changing quickly.	0.01 to 100	1
r I G ★	<input type="checkbox"/> [PID integral gain] (1) Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. It provides static precision when PI feedback is changing slowly.	0.01 to 100	1
F b S ★	<input type="checkbox"/> [PID fbk scale factor] (1) Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. For adapting the process.	0.1 to 100	1
P I C ★ n O Y E S	<input type="checkbox"/> [PID correct. reverse] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. <input type="checkbox"/> [No] (nO): Normal <input type="checkbox"/> [Yes] (YES): Reverse		[No] (nO)
P r 2 ★ n O L I 1 L I 2 L I 3 L I 4 L I 5 L I 6 C D 11 C D 12 C D 13 C D 14 C D 15	<input type="checkbox"/> [2 preset PID ref.] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. Selecting the assigned logic input activates the function. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network		[No] (nO)

(1)Parameter(s) can also be accessed in the [SETTINGS] (SEt-) menu.

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
I_D -
CLL -
FUn -
FLt -
CDn -
SUP -

Code	Name/Description	Adjustment range	Factory setting
P I -	■ [PI REGULATOR] (continued)		
Pr 4 ★	<input type="checkbox"/> [4 preset PID ref.] Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77. Selecting the assigned logic input activates the function. Make sure that [2 preset PID ref.] (Pr2), page 77, has been assigned before assigning [4 preset PID ref.] (Pr4). <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network		[No] (nO)
Pr 2 ★	<input type="checkbox"/> [Preset ref. PID 2] (1) See page 33.	0 to 100%	30%
Pr 3 ★	<input type="checkbox"/> [Preset ref. PID 3] (1) See page 33.	0 to 100%	60%
Pr 4 ★	<input type="checkbox"/> [Preset ref. PID 4] (1) See page 33.	0 to 100%	90%

(1)Parameter(s) can also be accessed in the [SETTINGS] (SEt-) menu.

★ 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
P I -	■ [PI REGULATOR] (continued)		
rSL ★	<input type="checkbox"/> [PID wake up thresh.] (1) <p>If the "PI" and "Low speed operating time" [Low speed time out] (tLS) (page 35) are configured at the same time, the PI regulator may attempt to set a speed lower than [Low speed] (LSP). This results in unsatisfactory operation, which consists of starting, operating at [Low speed] (LSP), then stopping, and so on.</p> <p>The rSL (restart error threshold) parameter can be used to set a minimum PI error threshold for restarting after a stop at prolonged [Low speed] (LSP).</p> <p>The function is inactive if [Low speed time out] (tLS) = 0.</p> <div style="background-color: black; color: white; text-align: center; padding: 5px;">⚠ DANGER</div> <div style="background-color: #f0f0f0; padding: 5px;"> UNINTENDED EQUIPMENT OPERATION <ul style="list-style-type: none"> Check that unintended restarts will not present any danger. </div> <p>Failure to follow these instructions will result in death or serious injury.</p>	0 to 100%	0%
P I I ★ nO YES	<input type="checkbox"/> [Act. internal PID ref.] <p><input type="checkbox"/> [No] (nO): The reference for the PI regulator is [Ref.1 channel] (Fr1), except for [+/-spd HMI] (UPdH) and [+/- SPEED] (UPdt) (+/- speed cannot be used as a reference for the PI regulator).</p> <p><input type="checkbox"/> [Yes] (YES): The reference for the PI regulator is provided internally via the [Internal PID ref.] (rPI) parameter.</p>		[No] (nO)
r P I ★	<input type="checkbox"/> [Internal PID ref.] (1) <p>Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77.</p>	0 to 100%	0%

(1)Parameter(s) can also be accessed in the [SETTINGS] (SEt-) menu.

★ 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.

Brake control

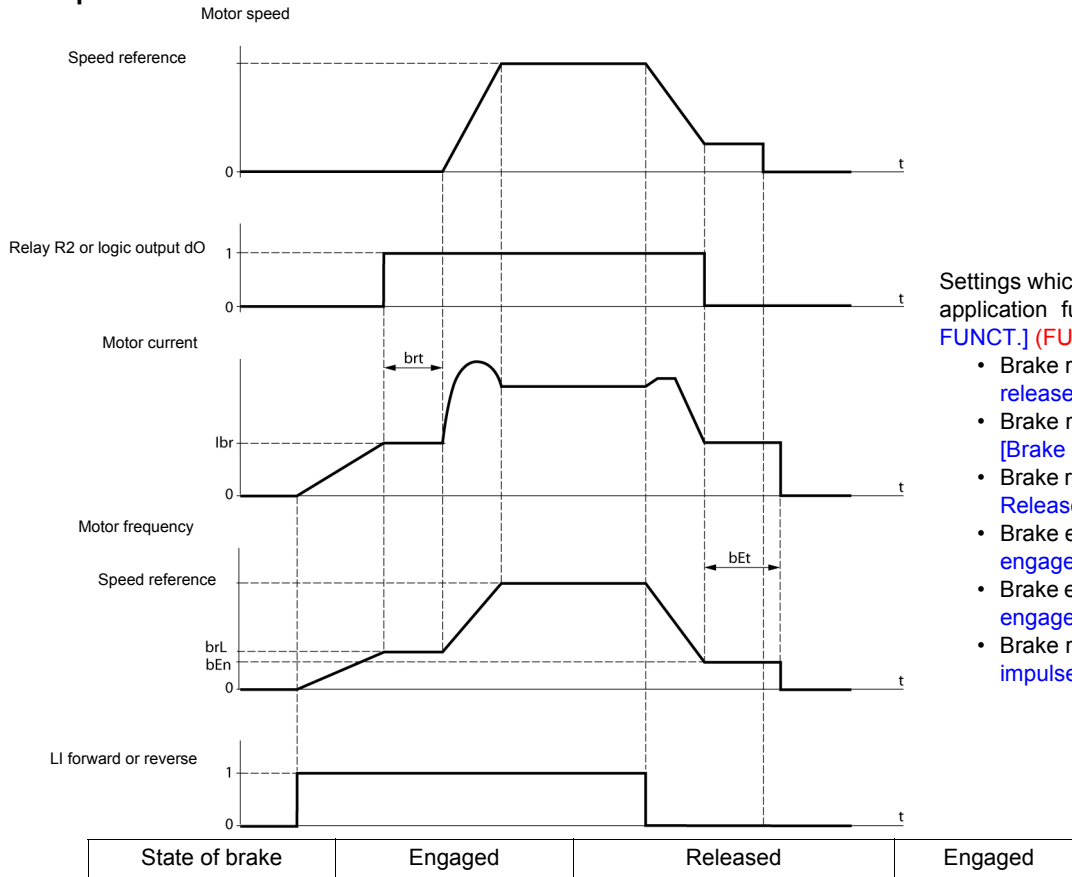
Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3) (page 50).

This function, which can be assigned to relay R2 or logic output dO, 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] (*ibr*)
- 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:

- [Brake release freq] (*brL*)**, page 81:
 - Horizontal movement: Set to 0
 - Vertical movement: Set to a frequency equal to the nominal motor slip in Hz
- [Brake release I FW] (*ibr*)**, page 81:
 - 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.
- [Brake Release time] (*brt*)**, page 81:

Adjust according to the type of brake. It is the time required for the mechanical brake to release.
- [Brake engage freq] (*bEn*)**, page 81:
 - 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).
- [Brake engage time] (*bEt*)**, page 81:

Adjust according to the type of brake. It is the time required for the mechanical brake to engage.
- [Brake impulse] (*bIP*)**, page 81:
 - 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.

[APPLICATION FUNCT.] (FUn-) menu

Code	Name/Description	Adjustment range	Factory setting
bLC -	■ [BRAKE LOGIC CONTROL] Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55. Note: This function may be incompatible with other functions (see page 18).		
bLC nO r2 dO	<input type="checkbox"/> [Brake assignment] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [R2] (r2): Relay R2 <input type="checkbox"/> [DO] (dO): Logic output dO If [Brake assignment] (bLC) is assigned, the [Catch on the fly] (FLr) parameter, page 89, and the [Dec ramp adapt.] (brA) parameter, page 61, are forced to [No] (nO), and the [Output Phase Loss] (OPL) parameter, page 90, is forced to [Yes] (YES). [Brake assignment] (bLC) is forced to [No] (nO) if [Output Phase Loss] (OPL) = [Output cut] (OAC), page 90. Note: At the Automation Studio the parameter r2/dO has to be set to bLC, when bLC = r2/dO.		[No] (nO)
brL ★	<input type="checkbox"/> [Brake release freq] Brake release frequency.	0.0 to 10.0 Hz	In accordance with the drive rating
lbr ★	<input type="checkbox"/> [Brake release I FW] Brake release current threshold for ascending or forward movement.	0 to 1.36 In (1)	In accordance with the drive rating
brt ★	<input type="checkbox"/> [Brake Release time] Brake release time delay.	0 to 5 s	0.5 s
LSP ★	<input type="checkbox"/> [Low speed] Motor frequency at min. reference. This parameter can also be changed in the [SETTINGS] (SEt-) menu, page 30.	0 to HSP (page 30)	0 LSP
bEn ★ nO to LSP	<input type="checkbox"/> [Brake engage freq] <input type="checkbox"/> Not set <input type="checkbox"/> Adjustment range in Hz 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.	nO - 0 to LSP	nO
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)

(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.

[APPLICATION FUNCT.] (FUn-) menu

REF -
SET -
drC -
I - 0 -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
LC2 -	■ [CURRENT LIMITATION 2] Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55.		
LC2	□ [Current limit 2] Selecting the assigned logic input activates the function. <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <input type="checkbox"/> [CD11] (CD11): Bit 11 of the control word from a communication network <input type="checkbox"/> [CD12] (CD12): Bit 12 of the control word from a communication network <input type="checkbox"/> [CD13] (CD13): Bit 13 of the control word from a communication network <input type="checkbox"/> [CD14] (CD14): Bit 14 of the control word from a communication network <input type="checkbox"/> [CD15] (CD15): Bit 15 of the control word from a communication network [Current Limitation] (CLI) is enabled when the logic input or control word bit is at state 0 ([SETTINGS] (SEt-) menu, page 35). [I Limit. 2 value] (CL2) is enabled when the logic input or control word bit is at state 1.	[No] (nO)	
CL2	□ [I Limit. 2 value] (1) See page 35.	0.25 to 1.5 In (2)	1.5 In (2)

(1)Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

(2)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.

[APPLICATION FUNCT.] (FUn-) menu

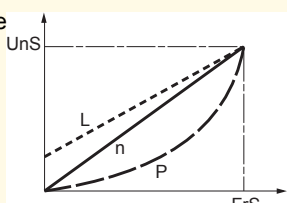
Code	Name/Description	Adjustment range	Factory setting
CHP -	<div> <div></div> <div>[SWITCHING MOTOR]</div> <div>Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55.</div> </div>		
CHP n0 L11 L12 L13 L14 L15 L16 Cd11 Cd12 Cd13 Cd14 Cd15	<div> <div><input type="checkbox"/> [Motor switching]</div> <div> <div>[No] (nO): Not assigned</div> <div>[LI1] (LI1): Logic input LI1</div> <div>[LI2] (LI2): Logic input LI2</div> <div>[LI3] (LI3): Logic input LI3</div> <div>[LI4] (LI4): Logic input LI4</div> <div>[LI5] (LI5): Not applicable</div> <div>[LI6] (LI6): Not applicable</div> </div> <div> If [ACCESS LEVEL] (LAC) = [Level 3] (L3), the following assignments are possible: <div> <div>[CD11] (CD11): Bit 11 of the control word from a communication network</div> <div>[CD12] (CD12): Bit 12 of the control word from a communication network</div> <div>[CD13] (CD13): Bit 13 of the control word from a communication network</div> <div>[CD14] (CD14): Bit 14 of the control word from a communication network</div> <div>[CD15] (CD15): Bit 15 of the control word from a communication network</div> </div> </div> <div> LI or bit = 0: Motor 1 LI or bit = 1: Motor 2 </div> <div> Note: <ul style="list-style-type: none"> If this function is used, the auto-tuning function, page 40, is not active on motor 2. Changes to parameters are only taken into account when the drive is locked. </div> </div>	[No] (nO)	
UnS2 ★	<div> <div><input type="checkbox"/> [Nom. mot. 2 volt.]</div> <div> 8I64S2****.00X-1: 100 to 240 V 8I64T2****.00X-1: 100 to 240 V 8I64T4****.00X-1: 100 to 500 V </div> </div>	In accordance with the drive rating	In accordance with the drive rating
FrS2 ★	<div> <div><input type="checkbox"/> [Nom. motor 2 freq.]</div> <div> Note: The ratio $\frac{[\text{Rated motor volt.}] (\text{UnS}) (\text{in volts})}{[\text{Rated motor freq.}] (\text{FrS}) (\text{in Hz})}$ must not exceed the following values: 8I64S2****.00X-1: 7 max. 8I64T2****.00X-1: 7 max. 8I64T4****.00X-1: 14 max. The factory setting is 50 Hz, or preset to 60 Hz if [Standard mot. freq.] (bFr) is set to 60 Hz. </div> </div>	10 to 500 Hz	50 Hz



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.

[APPLICATION FUNCT.] (FUn-) menu

REF -
SEt -
drC -
I.D -
CLL -
FUn -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
CHP -	[SWITCHING MOTOR] (continued)		
nCr2 ★	<input type="checkbox"/> [Nom. mot. 2 current] Nominal motor 2 current given on the rating plate.	0.25 to 1.5 In (2)	In accordance with the drive rating
nSP2 ★	<input type="checkbox"/> [Nom. mot. 2 speed] 0 to 9,999 rpm then 10.00 to 32.76 krpm If, rather than the nominal speed, the nameplate indicates the synchronous speed and the slip in Hz or as a %, calculate the nominal speed as follows: <ul style="list-style-type: none"> Nominal speed = synchronous speed x $\frac{100 - \text{slip as a \%}}{100}$ or Nominal speed = synchronous speed x $\frac{50 - \text{slip in Hz}}{50}$ (50 Hz motors) or Nominal speed = synchronous speed x $\frac{60 - \text{slip in Hz}}{60}$ (60 Hz motors) 	0 to 32,760 rpm	In accordance with the drive rating
COS2 ★	<input type="checkbox"/> [Motor 2 Cosinus Phi] Cos Phi given on the rating plate of motor 2.	0.5 to 1	In accordance with the drive rating
UFt2 L P n nLd ★	<input type="checkbox"/> [U/F mot.2 selected] <input type="checkbox"/> [Cst. torque] (L): Constant torque for motors connected in parallel or special motors <input type="checkbox"/> [Var. torque] (P): Variable torque for pump and fan applications <input type="checkbox"/> [SVC] (n): Sensorless flux vector control for constant torque applications <input type="checkbox"/> [Energy sav.] (nLd): Energy saving, for variable torque applications not requiring high dynamics (behaves in a similar way to the P ratio at no load and the n ratio on load) 		[SVC] (n)
UFr2 ★	<input type="checkbox"/> [IR compensation 2] (1) See page 35.	0 to 100%	20%
FLG2 ★	<input type="checkbox"/> [FreqLoopGain 2] (1) See page 36.	1 to 100%	20%
SLA2 ★	<input type="checkbox"/> [Freq. loop stability 2] (1) See page 36.	1 to 100%	20%
SLP2 ★	<input type="checkbox"/> [Slip compensation 2] (1) See page 36.	0 to 150%	100%

(1) Parameter can also be accessed in the [SETTINGS] (SEt-) menu.

(2) 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.

Management of limit switches

Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55.

This function can be used to manage the operation of one or two series limit switches (non-reversing or reversing).

- Assignment of one or two logic inputs (forward limit switch, reverse limit switch)
- Selection of the stop type (on ramp, fast or freewheel)
- Following a stop, the motor is permitted to restart in the opposite direction only.
- The stop is performed when the input is in state 0. The direction of operation is authorized in state 1.

Restarting after stop caused by a limit switch

- Send a run command in the other direction (when control is via the terminals, if [2/3 wire control] (tCC) = [2 wire] (2C) and [2 wire type] (tCt) = [Transition] (trn), first remove all the run commands).

or




- Invert the reference sign, remove all the run commands then send a run command in the same direction as before the stop caused by a limit switch.

Code	Name/Description	Adjustment range	Factory setting
LSt-	[LIMIT SWITCHES] Function can only be accessed if [ACCESS LEVEL] (LAC) = [Level 2] (L2) or [Level 3] (L3), page 55. Note: This function is incompatible with the "PI regulator" function (see page 18).		
LAF nD LI1 LI2 LI3 LI4 LI5 LI6	<input type="checkbox"/> [Stop FW limit sw.] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable		[No] (nO)
LAr ★ nD LI1 LI2 LI3 LI4 LI5 LI6	<input type="checkbox"/> [Stop RV limit sw.] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable		[No] (nO)
LAS ★ rPP FSt nSt	<input type="checkbox"/> [Stop type] Parameter can be accessed if [Stop FW limit sw.] (LAF) or [Stop RV limit sw.] (LAr) is assigned. <input type="checkbox"/> [Ramp stop] (rMP): On ramp <input type="checkbox"/> [Fast stop] (FSt): Fast stop <input type="checkbox"/> [Freewheel] (nSt): Freewheel stop		[Freewheel] (nSt)


★ 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.

[APPLICATION FUNCT.] (FUn-) menu

rEF -
SEt -
drC -
l_D -
CLt -
FUn -
FLt -
CON -
SUP -

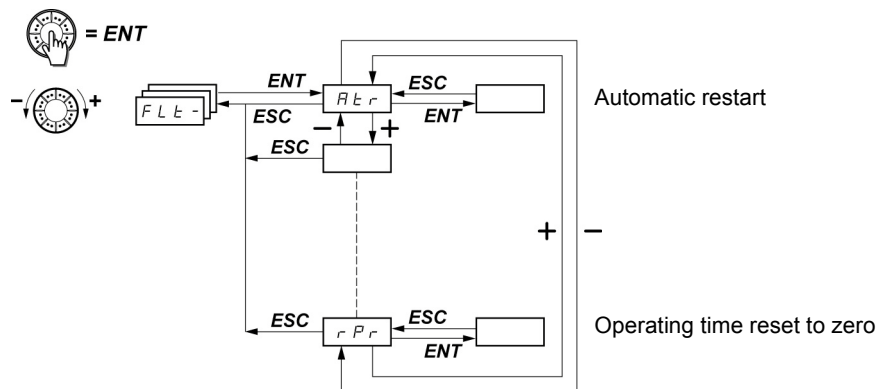
Code	Name/Description	Adjustment range	Factory setting
SCS  2 s	<input type="checkbox"/> [Saving config.] (1) See page 42.		[No] (nO)
CFG  2 s	<input type="checkbox"/> [Macro configuration] (1) See page 42.		[Factory set.] (Std)
FCS  2 s	<input type="checkbox"/> [Restore config.] (1) See page 43.		[No] (nO)

(1) [Saving config.] (SCS), [Macro configuration] (CFG), and [Restore config.] (FCS) can be accessed from several configuration menus, but they apply to all menus and parameters.

 2 s

The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[FAULT MANAGEMENT] (FLt-) menu



The parameters can only be modified when the drive is stopped and no run command is present.

Code	Description	Adjustment range	Factory setting
A L r n O YES	<p><input type="checkbox"/> [Automatic restart]</p> <div style="background-color: black; color: white; padding: 5px; text-align: center;"> ⚠ DANGER </div> <p>UNINTENDED EQUIPMENT OPERATION</p> <ul style="list-style-type: none"> The automatic restart can only be used on machines or installations which do not pose any danger to either personnel or equipment. If the automatic restart is activated, the assigned fault relay will only indicate a fault has been detected once the time-out period for the restart sequence has expired. The equipment must be used in compliance with national and regional safety regulations. <p>Failure to follow these instructions will result in death or serious injury.</p> <p>The motor's automatic restart function will only be active in 2-wire level control ([2/3 wire control] (tCC) = [2 wire] (2C), and [2 wire type] (tCt) = [Level] (LEL) or [Fwd priority] (PFO)).</p> <p><input type="checkbox"/> [No] (nO): Function inactive</p> <p><input type="checkbox"/> [Yes] (YES): Automatic restart if the fault has been cleared and the other operating conditions permit the restart. The restart is performed by a series of automatic attempts separated by increasingly longer waiting periods: 1 s, 5 s, 10 s, then 1 min for subsequent ones.</p> <p>If the restart has not taken place once the [Max. restart time] (tAr) configurable time has elapsed, the procedure is aborted and the drive remains locked until it is turned off and then on again.</p> <p>This function is possible with the following conditions:</p> <p>[NETWORK FAULT] (CnF): Communication detected fault on the communication card</p> <p>[CANopen com.] (COF): CANopen communication detected fault</p> <p>[External] (EPF): External fault</p> <p>[4-20mA] (LFF): 4-20 mA loss</p> <p>[Overbraking] (ObF): DC bus overvoltage</p> <p>[Drive overheat] (OHF): Drive overheating</p> <p>[Motor overload] (OLF): Motor overload</p> <p>[Mot. phase] (OPF): Motor phase loss</p> <p>[Mains overvoltage] (OSF): Line supply overvoltage</p> <p>[Mains phase loss] (PHF): Line phase loss</p> <p>If R2 is set to [No drive flt] (FLt), R2 remains activated if this function is active.</p>		[No] (nO)

[FAULT MANAGEMENT] (FLt-) menu

REF -

SEt -

drC -

LD -

CLL -

FUn -

FLt -

CON -

SUP -

Code	Description	Adjustment range	Factory setting
<div> <div> <div>★</div> <div> <div>FLt</div> <div> <div>5</div> <div>10</div> <div>30</div> <div>1h</div> <div>2h</div> <div>3h</div> <div>Ct</div> </div> </div> </div> </div>	<div> <input type="checkbox"/> [Max. restart time] Parameter is only visible if [Automatic restart] (Atr) = [Yes] (YES). It can be used to limit the number of consecutive restarts in the event of a recurrent detected fault. <input type="checkbox"/> [5 min] (5): 5 minutes <input type="checkbox"/> [10 min] (10): 10 minutes <input type="checkbox"/> [30 min] (30): 30 minutes <input type="checkbox"/> [1 hour] (1h): 1 hour <input type="checkbox"/> [2 hours] (2h): 2 hours <input type="checkbox"/> [3 hours] (3h): 3 hours <input type="checkbox"/> [Unlimited] (Ct): Unlimited (except for [MOTOR PHASE LOSS] (OPF) and [INPUT PHASE LOSS] (PHF); the max. duration of the restart process is limited to 3 hours) </div>		[5 min] (5)
<div> <div> <div>★</div> <div> <div>FLt</div> <div> <div>rSF</div> <div> <div>nO</div> <div>L11</div> <div>L12</div> <div>L13</div> <div>L14</div> <div>L15</div> <div>L16</div> </div> </div> </div> </div> </div>	<div> <input type="checkbox"/> [Fault reset] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable </div>		[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.


REF -
SEt -
drC -
I.D -
CtL -
FUN -
FLt -
CON -
SUP -

[FAULT MANAGEMENT] (FLt-) menu

REF -
SEt -
drC -
I_D -
CLL -
FUN -
FLt -
CON -
SUP -




Code	Description	Adjustment range	Factory setting
OPL nO YES bLC	<input type="checkbox"/> [Output Phase Loss] <input type="checkbox"/> [No] (nO): Function inactive <input type="checkbox"/> [Yes] (YES): Tripping on the [MOTOR PHASE LOSS] (OPF) <input type="checkbox"/> [Output cut] (OAC): No tripping on a [MOTOR PHASE LOSS] (OPF), but management of the output voltage in order to avoid an overcurrent when the link with the motor is re-established and catch on the fly performed even if [Catch on the fly] (FLr) = [No] (nO). To be used with output contactor. [Output Phase Loss] (OPL) is forced to [Yes] (YES) if [Brake assignment] (bLC) is not set to [No] (nO), page 81.		[Yes] (YES)
IPL nO YES	<input type="checkbox"/> [Input phase loss] This parameter is only accessible on 3-phase drives. <input type="checkbox"/> [No] (nO): Ignore <input type="checkbox"/> [Yes] (YES): Detected fault management with fast stop		[Yes] (YES)
OHL nO YES rPP FSt	<input type="checkbox"/> [Overtemp fault mgt] <input type="checkbox"/> [Ignore] (nO): Ignore <input type="checkbox"/> [Freewheel] (YES): Detected fault management with freewheel stop <input type="checkbox"/> [Ramp stop] (rMP): Detected fault management with stop on ramp <input type="checkbox"/> [Fast stop] (FSt): Detected fault management with fast stop		[Freewheel] (YES)
OLL nO YES rPP FSt	<input type="checkbox"/> [Overload fault mgt] <input type="checkbox"/> [Ignore] (nO): Ignore <input type="checkbox"/> [Freewheel] (YES): Detected fault management with freewheel stop <input type="checkbox"/> [Ramp stop] (rMP): Detected fault management with stop on ramp <input type="checkbox"/> [Fast stop] (FSt): Detected fault management with fast stop		[Freewheel] (YES)

[FAULT MANAGEMENT] (FLt-) menu

Code	Description	Adjustment range	Factory setting
SLL	<input type="checkbox"/> [Modbus fault mgt] Not applicable		[Fast stop] (FSt)
COL	<input type="checkbox"/> [CANopen fault mgt] <div style="border: 1px solid black; padding: 5px; text-align: center;">  WARNING </div> <div style="border: 1px solid black; padding: 5px;"> LOSS OF CONTROL If [CANopen fault mgt] (COL) = [Ignore] (nO), communication control will be inhibited. For safety reasons, inhibiting the communication fault detection should be restricted to the debug phase or to special applications. Failure to follow these instructions can result in death, serious injury, or equipment damage. </div>		[Fast stop] (FSt)
nO YES rNP FSt	<input type="checkbox"/> [Ignore] (nO): Ignore <input type="checkbox"/> [Freewheel] (YES): Detected fault management with freewheel stop <input type="checkbox"/> [Ramp stop] (rMP): Detected fault management with stop on ramp <input type="checkbox"/> [Fast stop] (FSt): Detected fault management with fast stop		
tnL nO YES	<input type="checkbox"/> [Autotune fault mgt] This parameter can be used to manage drive behavior in the event that auto-tuning is unsuccessful [AUTO TUNING FAULT] (tnF) <input type="checkbox"/> [No] (nO): Ignored (the drive reverts to the factory settings) <input type="checkbox"/> [Yes] (YES): Detected fault management with drive locked If [Cold stator resist.] (rSC), page 39, is not set to [No] (nO), [Autotune fault mgt] (tnL) is forced to [Yes] (YES).		[Yes] (YES)
LFL nO YES LFF rLS rNP FSt	<input type="checkbox"/> [4-20mA loss] <input type="checkbox"/> [Ignore] (nO): Ignored (only possible value if [AI3 min. value] (CrL3) ≤ 3 mA, page 45) <input type="checkbox"/> [Freewheel] (YES): Detected fault management with freewheel stop <input type="checkbox"/> [fallback spd] (LFF): The drive switches to the fallback speed ([fallback spd] (LFF) parameter) <input type="checkbox"/> [Spd maint.] (rLS): The drive maintains the speed at which it was operating when the loss was detected. This speed is saved and stored as a reference until the fault has disappeared. <input type="checkbox"/> [Ramp stop] (rMP): Detected fault management with stop on ramp <input type="checkbox"/> [Fast stop] (FSt): Detected fault management with fast stop Note: Before setting [4-20mA loss] (LFL) to [fallback spd] (LFF) check the connection of input AI3. If [4-20mA loss] (LFL) = [fallback spd] (LFF) or [Spd maint.] (rLS), no code is displayed.		[Freewheel] (YES)
LFF	<input type="checkbox"/> [Fallback speed] Fallback speed setting in the event of a [4-20mA loss] (LFL).	0 to 500 Hz	10 Hz

[FAULT MANAGEMENT] (FLt-) menu


REF -
SEt -
drC -
I_D -
CLL -
FUN -
FLt -
COP -
SUP -

Code	Description	Adjustment range	Factory setting
drn  2 s nO YES	<input type="checkbox"/> [Derated operation] Lowers the tripping threshold of [Undervoltage] (USF) : in order to operate on line supplies with 50% voltage drops. <input type="checkbox"/> [No] (nO) : Function inactive <input type="checkbox"/> [Yes] (YES) : Function active In this case, drive performance is derated. <div style="border: 1px solid black; padding: 5px; text-align: center;"> CAUTION RISK OF DAMAGE TO DRIVE When [Derated operation] (drn) = [Yes] (YES), use a line choke (see catalogue). Failure to follow these instructions can result in equipment damage. </div>		[No] (nO)
StP nO nns rMP FSt	<input type="checkbox"/> [UnderV. prevention] This function can be used to control the type of stop where there is a loss of line supply. <input type="checkbox"/> [No] (nO) : Locking of the drive and freewheel stopping of the motor <input type="checkbox"/> [DC Maintain] (MMS) : This stop mode uses the inertia to maintain the drive power supply as long as possible <input type="checkbox"/> [Ramp stop] (rMP) : Stop according to the valid ramp ([Deceleration] (dEC) or [Deceleration 2] (dE2)) <input type="checkbox"/> [Fast stop] (FSt) : Fast stop, the stopping time depends on the inertia and the braking ability of the drive		[No] (nO)
InH  2 s nO L11 L12 L13 L14 L15 L16	<input type="checkbox"/> [Fault inhibit assign.] <div style="background-color: black; color: white; text-align: center; padding: 5px;">  DANGER </div> LOSS OF PERSONNEL AND EQUIPMENT PROTECTION <ul style="list-style-type: none"> Enabling the fault inhibition parameter [Fault inhibit assign.] (InH) will disable the drive controller protection features. InH should not be enabled for typical applications of this equipment. InH should be enabled only in extraordinary situations where a thorough risk analysis demonstrates that the presence of adjustable speed drive protection poses a greater risk than personnel injury or equipment damage. Failure to follow these instructions will result in death or serious injury. This function disables drive protection for the following detected faults: SLF, CnF, EPF, CrF, LFF, OHF, OBF, OLF, OSF, OPF, PHF, SOF, tnF, COF, bLF <input type="checkbox"/> [No] (nO) : Not assigned <input type="checkbox"/> [LI1] (LI1) : Logic input LI1 <input type="checkbox"/> [LI2] (LI2) : Logic input LI2 <input type="checkbox"/> [LI3] (LI3) : Logic input LI3 <input type="checkbox"/> [LI4] (LI4) : Logic input LI4 <input type="checkbox"/> [LI5] (LI5) : Not applicable <input type="checkbox"/> [LI6] (LI6) : Not applicable The logic inputs are active in the high state.		[No] (nO)



The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[FAULT MANAGEMENT] (FLt-) menu

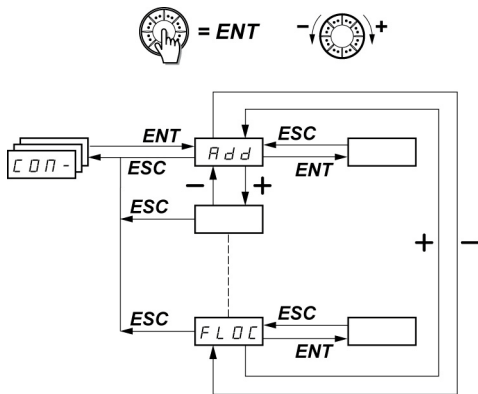
Code	Description	Adjustment range	Factory setting
<div>rPr</div> <div>nO</div> <div>rEtH</div>	<div><input type="checkbox"/> [Operating t. reset]</div> <div><input type="checkbox"/> [No] (nO): No</div> <div><input type="checkbox"/> [rst. runtime] (rtH): Operating time reset to zero</div> <div>The [Operating t. reset] (rPr) parameter automatically returns to [No] (nO) after resetting to 0.</div>		[No] (nO)
<div>rP</div> <div>nO</div> <div>YES</div> <div>⌚ 2 s</div>	<div><input type="checkbox"/> [Product reset]</div> <div><input type="checkbox"/> [No] (nO): No</div> <div><input type="checkbox"/> [Yes] (YES): Yes</div> <div> <div> DANGER</div> <div>UNINTENDED EQUIPMENT OPERATION</div> <div>You are going to reset the drive.</div> <div>• Check this action will not endanger personnel or equipment in any way.</div> <div>Failure to follow these instructions will result in death or serious injury.</div> </div>		[No] (nO)



The jog dial (ENT) needs to be pressed and held down (for 2 s) to change the assignment for this parameter.

[COMMUNICATION] (COM-) menu

rEF -
SEt -
drC -
I_D -
CLL -
FUN -
FLt -
CON -
SUP -



The parameters can only be modified when the drive is stopped and no run command is present. Modifications to the [Modbus Address] (Add), [Modbus baud rate] (tbr), [Modbus format] (tFO), [CANopen address] (AdCO), and [CANopen bit rate] (bdCO) parameters are not taken into account until the drive has been switched off and back on again.

Code	Description	Adjustment range	Factory setting
Add	<input type="checkbox"/> [Modbus Address] Not applicable	1 to 247	1
tbr	<input type="checkbox"/> [Modbus baud rate] Not applicable		19,200 bps
tFO	<input type="checkbox"/> [Modbus format] Not applicable		[8-E-1] (8E1)
tEO	<input type="checkbox"/> [Modbus time out] Not applicable	0.1 to 10 s	10 s
AdCO	<input type="checkbox"/> [CANopen address] CANopen address for the drive.	0 to 127	0
bdCO	<input type="checkbox"/> [CANopen bit rate] Modbus transmission speed <input type="checkbox"/> [10 kbps] (10.0): 10 kbps <input type="checkbox"/> [20 kbps] (20.0): 20 kbps <input type="checkbox"/> [50 kbps] (50.0): 50 kbps <input type="checkbox"/> [125 kbps] (125.0): 125 kbps <input type="checkbox"/> [250 kbps] (250.0): 250 kbps <input type="checkbox"/> [500 kbps] (500.0): 500 kbps <input type="checkbox"/> [1 Mbps] (1000): 1000 kbps		125 bps
ErCO	<input type="checkbox"/> [Error code] 0 <input type="checkbox"/> No error 1 <input type="checkbox"/> Bus off 2 <input type="checkbox"/> Life time 3 <input type="checkbox"/> CAN overrun 4 <input type="checkbox"/> Heartbeat		-

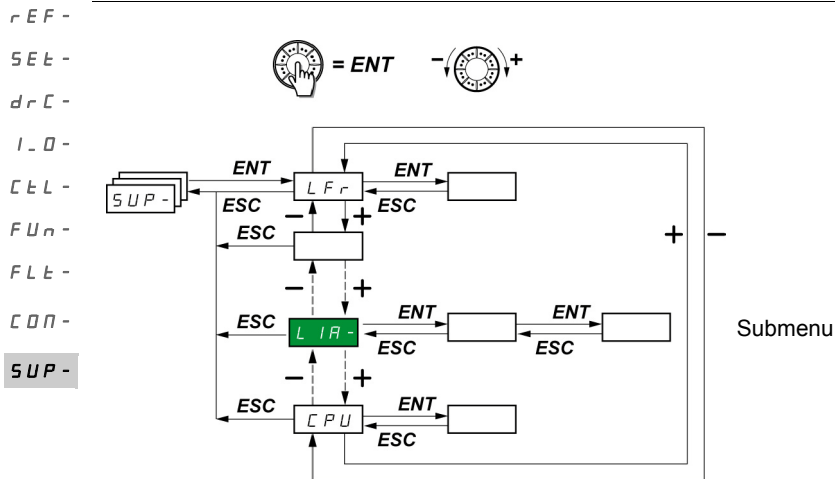
[COMMUNICATION] (COM-) menu

Code	Description	Adjustment range	Factory setting
FLD nO L11 L12 L13 L14 L15 L16	<input type="checkbox"/> [Forced local assign.] <input type="checkbox"/> [No] (nO): Not assigned <input type="checkbox"/> [LI1] (LI1): Logic input LI1 <input type="checkbox"/> [LI2] (LI2): Logic input LI2 <input type="checkbox"/> [LI3] (LI3): Logic input LI3 <input type="checkbox"/> [LI4] (LI4): Logic input LI4 <input type="checkbox"/> [LI5] (LI5): Not applicable <input type="checkbox"/> [LI6] (LI6): Not applicable In forced local mode, the terminals and the display terminal regain control of the drive.		[No] (nO)
FLDC ★ A11 A12 A13 AIV1 LCC	<input type="checkbox"/> [Forced local Ref.] Parameter can only be accessed if [ACCESS LEVEL] (LAC) = [Level 3] (L3), page 55. In forced local mode, only the speed reference is taken into account. PI functions, summing inputs, etc. are not active. See the diagrams on pages 52 to 54. <input type="checkbox"/> [AI1] (AI1): Not applicable <input type="checkbox"/> [AI2] (AI2): Analog input AI2, logic inputs LI <input type="checkbox"/> [AI3] (AI3): Analog input AI3, logic inputs LI <input type="checkbox"/> [AI Virtual 1] (AIV1): Jog dial, RUN/STOP buttons <input type="checkbox"/> [HMI] (LCC): Remote display terminal: [HMI Frequency ref.] (LFr) reference, page 29, RUN/STOP/FWD/REV buttons		[AI1] (AI1) (1)

(1) When using X2X, the factory setting is changed automatically to [AI Virtual 1] (AIV1).

★ 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.

[MONITORING] (SUP-) menu



The parameters can be accessed with the drive running or stopped.

Some functions have numerous parameters. In order to clarify programming and avoid having to scroll through endless parameters, these functions have been grouped in submenus.

Like menus, submenus are identified by a dash after their code: **LIA-** for example.

When the drive is running, the value displayed is that of one of the monitoring parameters. By default, the value displayed is the output frequency applied to the motor ([Output frequency] (rFr) parameter).

While the value of the new monitoring parameter required is being displayed, press and hold down the jog dial (ENT) again (for 2 seconds) to confirm the change of monitoring parameter and store it. From then on, it is the value of this parameter that will be displayed during operation (even after powering down).

Unless the new choice is confirmed by pressing and holding down ENT again, the display will revert to the previous parameter after powering down.

Note: After the drive has been turned off or following a loss of line supply, the parameter displayed is the drive status ([Ready] (rdY), for example).

The selected parameter is displayed following a run command.

[MONITORING] (SUP-) menu

Code	Description	Variation range
LFr ★	<input type="checkbox"/> [HMI Frequency ref.] Frequency reference for control via built-in display terminal or remote display terminal.	0 to 500 Hz
rPI ★	<input type="checkbox"/> [Internal PID ref.] Internal PID reference Parameter is only visible if [PID feedback ass.] (PIF) is not set to [No] (nO), page 77.	0 to 100%
F r H	<input type="checkbox"/> [Frequency ref.] Frequency reference before ramp (absolute value).	0 to 500 Hz
rFr	<input type="checkbox"/> [Output frequency] This parameter is also used for the +/- speed function using the jog dial on the keypad or display terminal. It displays and validates operation (see page 55). In the event of a loss of line supply, [Output frequency] (rFr) is not stored and the +/- speed function must be re-enabled in [MONITORING] (SUP-) and [Output frequency] (rFr).	- 500 Hz to + 500 Hz
SPd1 or SPd2 or SPd3	<input type="checkbox"/> [Cust. output value] [Cust. output value] (SPd1), [Cust. output value] (SPd2) or [Cust. output value] (SPd3) depending on the [Scale factor display] (SdS) parameter, page 37 ([Cust. output value] (SPd3) in the factory setting)	
LCr	<input type="checkbox"/> [Motor current] Estimation of current in the motor	
DP r	<input type="checkbox"/> [Motor power] 100% = nominal motor power, calculated using the parameters entered in the [MOTOR CONTROL] (drC-) menu	
UL n	<input type="checkbox"/> [Mains voltage] This parameter gives the line voltage via the DC bus, both in motor mode or when the motor is stopped.	
EH r	<input type="checkbox"/> [Motor thermal state] 100% = nominal thermal state 118% = "OLF" threshold (drive overload)	
EH d	<input type="checkbox"/> [Drv. Therm att.] 100% = nominal thermal state 118% = "OHF" threshold (drive overheating)	



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.

[MONITORING] (SUP-) menu

rEF-

SEt-

drC-

l_D-

CtL-

FUn-

FLt-

CON-

SUP-

Code	Description	Variation range
L F t	<input type="checkbox"/> [Last fault occurred]	
b L F	<input type="checkbox"/> [Brake control] (bLF): Brake control detected fault	
C F F	<input type="checkbox"/> [Incorrect config.] (CFF): Incorrect configuration (parameters)	
C F I	<input type="checkbox"/> [Invalid config.] (CFI): Invalid configuration (parameters)	
C n F	<input type="checkbox"/> [NETWORK FAULT] (CnF): Communication detected fault on the communication card	
C O F	<input type="checkbox"/> [CANopen com.] (COF): Communication detected fault line 2 (CANopen)	
C r F	<input type="checkbox"/> [Capa.charg] (CrF): Capacitor precharge detected fault	
E E F	<input type="checkbox"/> [EEPROM] (EEF): EEPROM memory detected fault	
E P F	<input type="checkbox"/> [External] (EPF): External fault	
I F 1	<input type="checkbox"/> [INTERNAL FAULT] (IF1): Unknown rating	
I F 2	<input type="checkbox"/> [INTERNAL FAULT] (IF2): HMI card not recognized or incompatible/display absent	
I F 3	<input type="checkbox"/> [INTERNAL FAULT] (IF3): EEPROM detected fault	
I F 4	<input type="checkbox"/> [INTERNAL FAULT] (IF4): Industrial EEPROM detected fault	
L F F	<input type="checkbox"/> [4-20mA] (LFF): 4-20 mA loss	
n O F	<input type="checkbox"/> [No fault] (nOF): No fault code saved	
O b F	<input type="checkbox"/> [Overbraking] (ObF): DC bus overvoltage	
O C F	<input type="checkbox"/> [Overcurrent] (OCF): Overcurrent	
O H F	<input type="checkbox"/> [Drive overheat] (OHF): Drive overheating	
O L F	<input type="checkbox"/> [Motor overload] (OLF): Motor overload	
O P F	<input type="checkbox"/> [Mot. phase] (OPF): Motor phase loss	
O S F	<input type="checkbox"/> [Mains overvoltage] (OSF): Line supply overvoltage	
P H F	<input type="checkbox"/> [Mains phase loss] (PHF): Line phase loss	
S C F	<input type="checkbox"/> [Mot. short circuit] (SCF): Motor short-circuit (phase, ground)	
S O F	<input type="checkbox"/> [Overspeed] (SOF): Motor overspeed	
t n F	<input type="checkbox"/> [Auto-tuning] (tnF): Auto-tuning detected fault	
U S F	<input type="checkbox"/> [Undervoltage] (USF): Line supply undervoltage	
O t r	<input type="checkbox"/> [Motor torque] 100% = nominal motor torque, calculated using the parameters entered in the [MOTOR CONTROL] (drC-) menu.	
r t H	<input type="checkbox"/> [Run time] Total time the motor has been powered up: 0 to 9,999 (hours), then 10.00 to 65.53 (kilo-hours). Can be reset to zero by the [Operating t. reset] (rPr) parameter in the [FAULT MANAGEMENT] (FLt-) menu, page 93.	0 to 65,530 hours

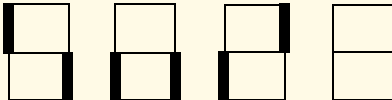

[MONITORING] (SUP-) menu

Code	Description	Variation range
<p>C d d</p> <p>OFF</p> <p>On</p> <p>8888</p>	<p><input type="checkbox"/> [PIN code 1] (1)</p> <p>Enables the drive configuration to be protected using an access code. When access is locked by means of a code, only the parameters in the [MONITORING] (SUP-) and [SPEED REFERENCE] (rEF-) menus can be accessed. The MODE button can be used to switch between menus.</p> <p>Note: Before entering a code, do not forget to make a careful note of it.</p> <ul style="list-style-type: none"> <input type="checkbox"/> [OFF] (OFF): No access locking codes <ul style="list-style-type: none"> To lock access, enter a code (2 to 9,999). The display can be incremented using the jog dial. Then press ENT. [ON] (On) appears on the screen to indicate that access has been locked. <input type="checkbox"/> [ON] (On): A code is locking access (2 to 9,999). <ul style="list-style-type: none"> To unlock access, enter the code (incrementing the display using the jog dial) and press ENT. The code remains on the display and access is unlocked until the next time the drive is turned off. Access will be locked again the next time the drive is turned on. If an incorrect code is entered, the display changes to [ON] (On), and access remains locked. <input type="checkbox"/> Access is unlocked (the code remains on the screen). <ul style="list-style-type: none"> To reactivate locking with the same code when access has been unlocked, return to [ON] (On) using the jog dial and then press ENT. [ON] (On) remains on the screen to indicate that access has been locked. To lock access with a new code when access has been unlocked, enter the new code (increment the display using the jog dial) and then press ENT. [ON] (On) appears on the screen to indicate that access has been locked. To clear locking when access has been unlocked, return to [OFF] (OFF) using the jog dial and then press ENT. [OFF] (OFF) remains on the display. Access is unlocked and will remain so until the next restart. 	
<p>t U S</p> <p>tAb</p> <p>PEnd</p> <p>PrOG</p> <p>FAIL</p> <p>dOnE</p> <p>Strd</p>	<p><input type="checkbox"/> [Auto tuning state]</p> <ul style="list-style-type: none"> <input type="checkbox"/> [Not done] (tAb): The default stator resistance value is used to control the motor <input type="checkbox"/> [Pending] (PEnd): Auto-tuning has been requested but not yet performed <input type="checkbox"/> [In Progress] (PrOG): Auto-tuning in progress <input type="checkbox"/> [Failed] (FAIL): Auto-tuning was unsuccessful <input type="checkbox"/> [Done] (dOnE): The stator resistance measured by the auto-tuning function is used to control the motor <input type="checkbox"/> [Entered R1] (Strd): The cold state stator resistance ([Cold stator resist.] (rSC) which is not set to [No] (nO)) is used to control the motor 	
<p>U d P</p>	<p><input type="checkbox"/> [Drv.Soft.Ver]</p> <p>This parameter gives the software version for the drive. Example: 1102 = V1.1 IE02</p>	

(1) When using X2X, the factory setting is changed automatically to 64.

[MONITORING] (SUP-) menu

REF -
SEt -
drC -
I_D -
CLt -
FUN -
FLt -
CON -
SUP -

Code	Name/Description	Adjustment range	Factory setting
L 1A -	■ [LOGIC INPUT CONF.]		
L 11A L 12A L 13A L 14A L 15A L 16A	Can be used to display the functions assigned to each input. If no functions have been assigned, [No] (nO) is displayed. The jog dial can be used to scroll through all the functions. If a number of functions have been assigned to the same input, check that they are compatible.		
L 15	<p>Can be used to display the state of logic inputs (display segment assignment: high = 1, low = 0)</p> <p>State 1 </p> <p>State 0 </p> <p>LI1 LI2 LI3 LI4 LI5 LI6</p> <p>Example above: LI1 and LI6 are at 1; LI2 to LI5 are at 0.</p>		
A 1A -	■ [ANALOG INPUTS IMAGE]		
A 11A A 12A A 13A	Can be used to display the functions assigned to each input. If no functions have been assigned, [No] (nO) is displayed. The jog dial can be used to scroll through all the functions. If a number of functions have been assigned to the same input, check that they are compatible.		

Diagnostics and troubleshooting

Drive does not start, no code displayed

- If the display does not light up, check the power supply to the drive and check the wiring of inputs and the communication interface.
- The assignment of the "Fast stop" or "Freewheel stop" functions will prevent the drive from starting if the corresponding logic inputs are not powered up. The ACOPOSinverter X64 then displays [\[Freewheel stop\] \(nSt\)](#) or [\[Fast stop\] \(FSt\)](#). This is normal since these functions are active at zero so that the drive will be stopped if there is a wire break.
- Check that the run command input(s) have been actuated in accordance with the chosen control mode (the [\[2/3 wire control\] \(tCC\)](#) parameter in the [\[INPUTS / OUTPUTS CFG\] \(I_O-\)](#) menu, page [44](#)).
- If an input is assigned to the limit switch function and this input is at zero, the drive can only be started up by sending a command for the opposite direction (see page [85](#)).
- If the reference channel (page [50](#)) or the control channel (page [51](#)) is assigned to a communication network, when the power supply is connected, the drive will display [\[Freewheel stop\] \(nSt\)](#) and remain in stop mode until the communication bus sends a command.
- If the LED on the DC bus is lit and nothing appears on the display, check that there is no short-circuit on the 10 V power supply.
- If the drive displays [\[Ready\] \(rdy\)](#) and refuses to start, check that there is no short-circuit on the 10 V power supply and check the wiring of inputs and the communication interface.
- In the factory setting, the "RUN" button is inactive. Set the [\[Ref.1 channel\] \(Fr1\)](#) parameter, page [26](#), and the [\[Cmd channel 1\] \(Cd1\)](#) parameter, page [56](#), to control the drive locally.

Fault detection codes which require a power reset after the fault is cleared

The cause of the fault must be removed before resetting by cycling power to the drive.

[\[PRECHARGE FAULT\] \(CrF\)](#), [\[OVERSPEED\] \(SOF\)](#), [\[AUTO-TUNING FAULT\] \(tnF\)](#), and [\[BRAKE CONTROL FAULT\] \(bLF\)](#) can also be reset remotely using a logic input (the [\[Fault reset\] \(rSF\)](#) parameter in the [\[FAULT MANAGEMENT\] \(FLt-\)](#) menu, page [88](#)).

The faults bLF, CrF, EEf, IF1, IF2, IF3, IF4, OCF, SOF and tnF can also be locked or resetted by logic input or network control bit (Parameter [\[Fault inhibit assign.\] \(InH\)](#), page [92](#)).

Code	Name	Probable cause	Remedy
b L F	[BRAKE CONTROL FAULT]	<ul style="list-style-type: none">• Brake release current not reached• Brake engage frequency threshold [Brake engage freq] (bEn) = [No] (nO) (not set) whereas the brake control [Brake assignment] (bLC) is assigned	<ul style="list-style-type: none">• Check the drive/motor connection• Check the motor windings• Check the [Brake release I FW] (lbr) setting in the [APPLICATION FUNCT.] (FUN-) menu, page 81• Apply the recommended settings for [Brake engage freq] (bEn), pages 80 and 81
C r F	[PRECHARGE FAULT]	<ul style="list-style-type: none">• Precharge relay control or damaged precharge resistor	<ul style="list-style-type: none">• Replace the drive
E E F	[EEPROM FAULT]	<ul style="list-style-type: none">• Internal memory	<ul style="list-style-type: none">• Check the environment (electromagnetic compatibility)• Replace the drive
I F 1	[INTERNAL FAULT]	<ul style="list-style-type: none">• Unknown rating	<ul style="list-style-type: none">• Replace the drive• Restart the drive• Contact your local B&R office
I F 2	[INTERNAL FAULT]	<ul style="list-style-type: none">• HMI card not recognized• HMI card incompatible• No display present	
I F 3	[INTERNAL FAULT]	<ul style="list-style-type: none">• EEPROM	
I F 4	[INTERNAL FAULT]	<ul style="list-style-type: none">• Industrial EEPROM	

Diagnostics and troubleshooting (continued)

Fault detection codes which require a power reset after the fault is cleared (continued)

Code	Name	Probable cause	Remedy
O C F	[OVERCURRENT]	<ul style="list-style-type: none"> Parameters in the [SETTINGS] (SEt-) and [MOTOR CONTROL] (drC-) menus are incorrect Inertia or load too high Mechanical locking 	<ul style="list-style-type: none"> Check the parameters in [SETTINGS] (SEt-), page 29, and [MOTOR CONTROL] (drC-) page 38 Check the size of the motor/drive/load Check the state of the mechanism
S C F	[MOTOR SHORT CIRCUIT]	<ul style="list-style-type: none"> Short-circuit or grounding at the drive output Significant ground leakage current at the drive output if several motors are connected in parallel 	<ul style="list-style-type: none"> Check the cables connecting the drive to the motor, and the motor insulation Reduce the switching frequency Connect chokes in series with the motor
S D F	[OVERSPEED]	<ul style="list-style-type: none"> Instability or Driving load too high 	<ul style="list-style-type: none"> Check the motor, gain and stability parameters Add a braking resistor Check the size of the motor/drive/load
E n F	[AUTO TUNING FAULT]	<ul style="list-style-type: none"> Special motor or motor whose power is not suitable for the drive Motor not connected to the drive 	<ul style="list-style-type: none"> Use the L ratio or the [Var. torque] (P) ratio (see [U/F mot 1 selected] (UFt), page 41) Check that the motor is present during auto-tuning If an output contactor is being used, close it during auto-tuning

Fault detection codes that can be reset with the automatic restart function after the cause has disappeared

See the **[Automatic restart]** (Atr) function, page 87.

These detected faults can also be reset by turning the drive off then on again or by means of a logic input (the **[Fault reset]** (rSF) parameter, page 88, in the **[FAULT MANAGEMENT]** (FLt-) menu, page 86).

Code	Name	Probable cause	Remedy
L n F	[NETWORK FAULT]	<ul style="list-style-type: none"> Communication detected fault on the communication card 	<ul style="list-style-type: none"> Check the environment (electromagnetic compatibility) Check the wiring Check the time out Replace the option card
L D F	[CANopen FAULT]	<ul style="list-style-type: none"> Interruption in communication on the CANopen bus 	<ul style="list-style-type: none"> Check the communication bus Refer to the relevant product documentation
E P F	[EXTERNAL FAULT]	<ul style="list-style-type: none"> Depending on user 	<ul style="list-style-type: none"> Depending on user
L F F	[4-20mA LOSS]	<ul style="list-style-type: none"> Loss of the 4-20 mA reference on input AI3 	<ul style="list-style-type: none"> Check the connection on input AI3
O b F	[OVERBRAKING]	<ul style="list-style-type: none"> Braking too sudden or driving load 	<ul style="list-style-type: none"> Increase the deceleration time Install a braking resistor if necessary Activate the [Dec ramp adapt.] (bra) function, page 61, if it is compatible with the application
O H F	[DRIVE OVERHEAT]	<ul style="list-style-type: none"> Drive temperature too high 	<ul style="list-style-type: none"> Check the motor load, the drive ventilation and the environment. Wait for the drive to cool before restarting

Diagnostics and troubleshooting (continued)

Fault detection codes that can be reset with the automatic restart function after the cause has disappeared (continued)

Code	Name	Probable cause	Remedy
OL F	[MOTOR OVERLOAD]	<ul style="list-style-type: none"> Triggered by excessive motor current [Cold stator resist.] (rSC) parameter value incorrect 	<ul style="list-style-type: none"> Check the [Mot. therm. current] (ItH) setting, page 30, of the motor thermal protection, check the motor load. Wait for the drive to cool before restarting Remeasure [Cold stator resist.] (rSC), page 39
OP F	[MOTOR PHASE LOSS]	<ul style="list-style-type: none"> Loss of one phase at drive output Output contactor open Motor not connected or motor power too low Instantaneous instability in the motor current 	<ul style="list-style-type: none"> Check the connections from the drive to the motor If an output contactor is being used, set [Output Phase Loss] (OPL) to [Output cut] (OAC) ([FAULT MANAGEMENT] (FLt-) menu, page 90) Test on a low-power motor or without a motor: In factory settings mode, motor output phase loss detection is active ([Output Phase Loss] (OPL) = [Yes] (YES)). To check the drive in a test or maintenance environment without having to switch to a motor with the same rating as the drive (particularly useful in the case of high-power drives), deactivate motor phase loss detection ([Output Phase Loss] (OPL) = [No] (nO)). Check and optimize the [IR compensation] (UFR), [Rated motor volt.] (UnS), and [Rated mot. current] (nCr) parameters, and perform an [Auto tuning] (tUn) operation, page 40
OS F	[MAINS OVERVOLTAGE]	<ul style="list-style-type: none"> Line voltage is too high Disturbed line supply 	<ul style="list-style-type: none"> Check the line voltage
PH F	[INPUT PHASE LOSS]	<ul style="list-style-type: none"> Drive incorrectly supplied or a fuse blown Failure of one phase Three-phase ACOPOSinverter X64 used on a single-phase line supply Unbalanced load This protection only operates with the drive on load 	<ul style="list-style-type: none"> Check the power connection and the fuses Reset Use a three-phase line supply Disable the detection by setting [Input phase loss] (IPL) = [No] (nO) ([FAULT MANAGEMENT] (FLt-) menu, page 90)
SL F	[MODBUS FAULT]	<ul style="list-style-type: none"> Interruption in communication on the Modbus bus Remote display terminal enabled ([HMI command] (LCC) = [Yes] (YES), page 58) and terminal disconnected. 	<ul style="list-style-type: none"> Check the communication bus Refer to the relevant product documentation. Check the link with the remote display terminal.

Diagnostics and troubleshooting (continued)

Fault detection codes that are reset as soon as their cause disappears

Code	Name	Probable cause	Remedy
[F F]	[INCORRECT CONFIG.]	<ul style="list-style-type: none">• The current configuration is inconsistent• Addition or removal of an option	<ul style="list-style-type: none">• Return to factory settings or retrieve the backup configuration, if it is valid. See the [Restore config.] (FCS) parameter, page 43
[F I]	[INVALID CONFIG]	<ul style="list-style-type: none">• Invalid configuration The configuration loaded in the drive via the serial link is inconsistent	<ul style="list-style-type: none">• Check the configuration loaded previously.• Load a consistent configuration.
[U S F]	[UNDERVOLTAGE]	<ul style="list-style-type: none">• Insufficient line supply• Transient voltage dip• Damaged precharge resistor	<ul style="list-style-type: none">• Check the voltage and the voltage parameter. Tripping threshold in [UNDERVOLTAGE] (USF) 8I64S2*****.00X-1: 160 V 8I64T2*****.00X-1: 160 V 8I64T4*****.00X-1: 300 V• Replace the drive

Index of functions

[+/- SPEED]	73
[2/3 wire control]	44
[ACCESS LEVEL]	55
[Logic output]	45
[Auto DC injection]	65
[Automatic restart]	87
[Auto tuning]	40
Brake control	80
[CANopen address]	94
[Catch on the fly]	89
[Cmd switching]	57
Control and reference channels	47
[Current limit 2]	82
[Current Limitation]	35
[DC injection assign.]	63
[Dec ramp adapt.]	61
Drive thermal protection	11
Drive ventilation	11
[Fast stop]	62
[Fault reset]	88
[Forced local assign.]	95
[Freewheel stop ass.]	64
[JOG]	72
Management of limit switches	85
[Modbus Address]	94
[Mot. therm. current]	30
Motor thermal protection	12
PI regulator	75
Preset speeds	68
[R1 Assignment]	46
[R2 Assignment]	46
[RAMPS]	59
[Ramp switch ass.]	61
[Ref. 2 switching]	56
Return to factory settings/Restore configuration	43
Saving the configuration	42
[Skip Frequency]	33
[STOP MODES]	62
[SUMMING INPUTS]	67
[Switching freq.]	37
[SWITCHING MOTOR]	83
[U/F mot 1 selected]	41

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
A C 2	<u>29</u> <u>61</u>	[Acceleration 2]	s	In accordance with In r	-	5	
A C C	<u>29</u> <u>60</u>	[Acceleration]	s	In accordance with In r	-	3	
A d C	<u>65</u>	[Auto DC injection]	-	n 0 y e s C t	[No]: No injection [Yes]: Standstill injection for adjustable period [Continuous]: Continuous standstill injection	y e s	
A d C 0	<u>94</u>	[CANopen address]	-	0 to 1 2 7	-	0	
A d d	<u>94</u>	[Modbus Address]	-		Not applicable	1	
A I 1 A	<u>100</u>	[AI1 assignment]	-	-	Not applicable	-	
A I 2 A	<u>100</u>	[AI2 assignment]	-	-	-	-	
A I 3 A	<u>100</u>	[AI3 assignment]	-	-	-	-	
A I U 1	<u>28</u>	[Image input AI1V1]	%	0 to 1 0 0	-	-	
A O 1 t	<u>45</u>	[AO1 Type]	-	0 A 4 A 1 0 U	[Current]: 0 - 20 mA configuration [Cur. 4-20]: Not applicable [Voltage]: Not applicable	0	
A t r	<u>87</u>	[Automatic restart]	-	n 0 y e s	[No]: Function inactive [Yes]: Automatic restart	n 0	
b d C 0	<u>94</u>	[CANopen bit rate]	kbps	1 0. 0 2 0. 0 5 0. 0 1 2 5. 0 2 5 0. 0 5 0 0. 0 1 0 0 0	[10 kbps]: 10 kbps [20 kbps]: 20 kbps [50 kbps]: 50 kbps [125 kbps]: 125 kbps [250 kbps]: 250 kbps [500 kbps]: 500 kbps [1 Mbps]: 1000 kbps	1 2 5. 0	
b E n	<u>81</u>	[Brake engage freq]	-	n 0 0 to L S P	Not set Adjustment range in Hz	n 0	
b E t	<u>81</u>	[Brake engage time]	s	0 to 5	-	0. 5	
b F r	<u>26</u> <u>38</u>	[Standard mot. freq]	Hz	5 0 6 0	[50Hz IEC] [60Hz NEMA]	5 0	
b I P	<u>81</u>	[Brake impulse]	-	n 0 y e s	[No]: Motor torque during brake release in the direction of rotation requested [Yes]: Motor torque during brake release in forward rotation	n 0	
b L C	<u>81</u>	[Brake assignment]	-	n 0 r 2 d 0	[No]: Not assigned [R2]: Relay R2 [DO]: Logic output dO	n 0	
b r A	<u>61</u>	[Dec ramp adapt.]	-	n 0 y e s	[No]: Function inactive [Yes]: Function active	y e s	
b r L	<u>81</u>	[Brake release freq]	Hz	0. 0 to 1 0. 0	-	In accordance with the drive rating	
b r t	<u>81</u>	[Brake Release time]	s	0 to 5	-	0. 5	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
C C 5	57	[Cmd switching]	-	C d 1 C d 2 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C 1 1 1 C 1 1 2 C 1 1 3 C 1 1 4 C 1 1 5 C 2 1 1 C 2 1 2 C 2 1 3 C 2 1 4 C 2 1 5	[ch1 active] : Control channel = channel 1 [ch2 active] : Control channel = channel 2 [L11] : Logic input LI1 [L12] : Logic input LI2 [L13] : Logic input LI3 [L14] : Logic input LI4 [L15] : Not applicable [L16] : Not applicable [C111] : Not applicable [C112] : Not applicable [C113] : Not applicable [C114] : Not applicable [C115] : Not applicable [C211] : Bit 11 of network control word [C212] : Bit 12 of network control word [C213] : Bit 13 of network control word [C214] : Bit 14 of network control word [C215] : Bit 15 of network control word	C d 1	
C d 1	56	[Cmd channel 1]	-	t E r L O C L C C n d b n E t	[Terminal] : Control via terminals [Local] : Control via keypad [Remot. HMI] : Control via remote display terminal [Modbus] : Not applicable [Com. card] : Control via the network	t E r	
C d 2	56	[Cmd channel 2]	-	t E r L O C L C C n d b n E t	[Terminal] : Control via terminals [Local] : Control via keypad [Remot. HMI] : Control via remote display terminal [Modbus] : Not applicable [Com. card] : Control via the network	n d b	
C F G	42 46 58	[Macro configuration]	-	S t S S t d	[Start/Stop] : Start/stop configuration [Factory set.] : Factory configuration	S t d	
C H C F	56	[Profile]	-	S I n S E P	[Not separ.] : Combined [Separate] : Separate	S I n	
C H P	83	[Motor switching]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No] : Not assigned [L11] : Logic input LI1 [L12] : Logic input LI2 [L13] : Logic input LI3 [L14] : Logic input LI4 [L15] : Not applicable [L16] : Not applicable [CD11] : Bit 11 of the control word from a communication network [CD12] : Bit 12 of the control word from a communication network [CD13] : Bit 13 of the control word from a communication network [CD14] : Bit 14 of the control word from a communication network [CD15] : Bit 15 of the control word from a communication network	n 0	
C L 1	35	[Current Limitation]	In	0. 2 5 to 1. 5	-	1. 5	
C L 2	35 82	[I Limit. 2 value]	In	0. 2 5 to 1. 5	-	1. 5	
C n F	98	[NETWORK FAULT]	-	-	-	-	
C 0 d	99	[PIN code 1]	-	0 F F 0 n B B B B	[OFF] : No code is locking access [ON] : A code is locking access Access is unlocked	-	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
C D L	<u>91</u>	[CANopen fault mgt]	-	n 0 Y E S r N P F S L	[Ignore]: Ignore [Freewheel]: Detected fault management with freewheel stop [Ramp stop]: Detected fault management with stop on ramp [Fast stop]: Detected fault management with fast stop	Y E S	
C O P	<u>57</u>	[Copy channel 1<->2]	-	n 0 S P C d A L L	[No]: No copy [Reference]: Copy reference [Command]: Copy command [Cmd + ref.]: Copy command and reference	n 0	
C O S	<u>39</u>	[Motor 1 Cosinus Phi]	-	0. 5 to 1	-	In accordance with the drive rating	
C O S 2	<u>84</u>	[Motor 2 Cosinus Phi]	-	0. 5 to 1	-	In accordance with the drive rating	
C r H 3	<u>45</u>	[AI3 max. value]	mA	4 to 2 0	-	2 0	
C r L 3	<u>45</u>	[AI3 min. value]	mA	0 to 2 0	-	4	
C t d	<u>36</u>	[Current threshold]	In	0 to 1. 5	-	1	
d C F	<u>62</u>	[Differential current fault]	-	0 to 1 0	-	4	
d C I	<u>63</u>	[DC injection assign.]	-	n 0 L I 1 L I 2 L I 3 L I 4 L I 5 L I 6 C d I 1 C d I 2 C d I 3 C d I 4 C d I 5	[No]: Not assigned [LI1]: Logic input LI1 [LI2]: Logic input LI2 [LI3]: Logic input LI3 [LI4]: Logic input LI4 [LI5]: Not applicable [LI6]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	
d E 2	<u>29</u> <u>61</u>	[Deceleration 2]	s	In accordance with l n r	-	5	
d E C	<u>29</u> <u>60</u>	[Deceleration]	s	In accordance with l n r	-	3	
d O	<u>45</u>	[Logic output]	-	n 0 O C r O F r O t r O P r F L t r U n F t A F L A C t A S r A t S A b L C A P L	[No]: Not assigned [I motor]: Not applicable [Motor freq.]: Not applicable [Motor torq.]: Not applicable [P. supplied]: Not applicable [Drive fault]: Detected fault. [Drv running]: Drive running [Freq. limit]: Frequency threshold reached [HSP limit]: High speed reached [Brake seq.]: Current threshold reached [Freq. ref.]: Frequency reference reached [Drv thermal]: Motor thermal threshold reached [Brake seq.]: Brake sequence [No 4-20mA]: Not applicable	n 0	
d r n	<u>92</u>	[Derated operation]	-	n 0 Y E S	[No]: Function inactive [Yes]: Function active	n 0	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
dSP	<u>74</u>	[Speed assignment]	-	n0 L11 L12 L13 L14 L15 L16	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	n0	
EPL	<u>89</u>	[External fault mgt]	-	n0 YES rNP FSt	[Ignore]: Ignore [Freewheel]: Detected fault management with freewheel stop [Ramp stop]: Detected fault management with stop on ramp [Fast stop]: Detected fault management with fast stop	YES	
ErCD	<u>94</u>	[Error code]	-	0 1 2 3 4	No error Bus off Life time CAN overrun Heartbeat	-	
ELF	<u>89</u>	[External fault ass.]	-	n0 L11 L12 L13 L14 L15 L16 CD11 CD12 CD13 CD14 CD15	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n0	
FbS	<u>33</u> <u>77</u>	[PID fbk scale factor]	-	0.1 to 100	-	1	
FLS	<u>43</u> <u>46</u> <u>58</u>	[Restore config.]	-	n0 rEC1 In1	[NO]: Function inactive [Internal]: The current configuration becomes identical to the backup configuration previously saved by SCS = Scr1 . [Factory Set.]: Current configuration replaced by the configuration selected by the CFG parameter	n0	
FLG	<u>30</u>	[FreqLoopGain]	%	1 to 100	-	20	
FLG2	<u>36</u> <u>84</u>	[FreqLoopGain 2]	%	1 to 100	-	20	
FLD	<u>95</u>	[Forced local assign.]	-	n0 L11 L12 L13 L14 L15 L16	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	n0	
FLDC	<u>95</u>	[Forced local Ref.]	-	A11 A12 A13 A1U1 LCC	[A11]: Not applicable [A12]: Analog input AI2, logic inputs LI [A13]: Analog input AI3, logic inputs LI [AI Virtual 1]: Jog dial, RUN/STOP buttons [HMI]: Remote display terminal, RUN/STOP/FWD/REV buttons	A11	
FLr	<u>89</u>	[Catch on the fly]	-	n0 YES	[No]: Function inactive [Yes]: Function active	n0	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
<i>F r 1</i>	<u>26</u> <u>55</u>	[Ref.1 channel]	-	<i>A 1 1</i> <i>A 1 2</i> <i>A 1 3</i> <i>A 1 U 1</i> <i>U P d t</i> <i>U P d H</i> <i>L C C</i> <i>n d b</i> <i>n E t</i>	[AI1]: Not applicable [AI2]: Analog input AI2 [AI3]: Analog input AI3 [AI Virtual 1]: Jog dial [+/-Speed]: +/- speed reference via <i>L 1</i> [+/-spd HMI]: +/- speed reference using the jog dial on the ACOPOSinverter X64 keypad [HMI]: Reference via the remote display terminal [Modbus]: Not applicable [Com. card]: Reference via network	<i>A 1 1</i>	
<i>F r 2</i>	<u>55</u>	[Ref.2 channel]	-	<i>n 0</i> <i>A 1 1</i> <i>A 1 2</i> <i>A 1 3</i> <i>A 1 U 1</i> <i>U P d t</i> <i>U P d H</i> <i>L C C</i> <i>n d b</i> <i>n E t</i>	[No]: Not assigned [AI1]: Not applicable [AI2]: Analog input AI2 [AI3]: Analog input AI3 [AI Virtual 1]: Jog dial [+/-Speed]: +/- speed reference via <i>L 1</i> [+/-spd HMI]: +/- speed reference using the jog dial on the ACOPOSinverter X64 keypad [HMI]: Reference via the remote display terminal [Modbus]: Not applicable [Com. card]: Reference via network	<i>n 0</i>	
<i>F r H</i>	<u>97</u>	[Frequency ref.]	Hz	<i>0 to 500</i>	-	-	
<i>F r 5</i>	<u>38</u>	[Rated motor freq.]	Hz	<i>10 to 500</i>	-	<i>50</i>	
<i>F r 5 2</i>	<u>83</u>	[Nom. motor 2 freq.]	Hz	<i>10 to 500</i>	-	<i>50</i>	
<i>F r t</i>	<u>61</u>	[Ramp 2 threshold]	Hz	<i>0 to 500</i>	-	<i>0</i>	
<i>F 5 t</i>	<u>62</u>	[Fast stop]	-	<i>n 0</i> <i>L 1 1</i> <i>L 1 2</i> <i>L 1 3</i> <i>L 1 4</i> <i>L 1 5</i> <i>L 1 6</i> <i>C d 1 1</i> <i>C d 1 2</i> <i>C d 1 3</i> <i>C d 1 4</i> <i>C d 1 5</i>	[No]: Not assigned [LI1]: Logic input LI1 [LI2]: Logic input LI2 [LI3]: Logic input LI3 [LI4]: Logic input LI4 [LI5]: Not applicable [LI6]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	<i>n 0</i>	
<i>F t d</i>	<u>36</u>	[Freq. threshold]	Hz	<i>0 to 500</i>	-	<i>b F r</i>	
<i>H 5 P</i>	<u>30</u>	[High speed]	Hz	<i>L 5 P to t F r</i>	-	<i>b F r</i>	
<i>I b r</i>	<u>81</u>	[Brake release I FW]	In	<i>0 to 1. 36</i>	-	In accordance with the drive rating	
<i>I d C</i>	<u>31</u> <u>63</u>	[DC inject. level 1]	In	<i>0 to In</i>	-	<i>0. 7</i>	
<i>I n H</i>	<u>92</u>	[Fault inhibit assign.]	-	<i>n 0</i> <i>L 1 1</i> <i>L 1 2</i> <i>L 1 3</i> <i>L 1 4</i> <i>L 1 5</i> <i>L 1 6</i>	[No]: Not assigned [LI1]: Logic input LI1 [LI2]: Logic input LI2 [LI3]: Logic input LI3 [LI4]: Logic input LI4 [LI5]: Not applicable [LI6]: Not applicable	<i>n 0</i>	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
<i>Inr</i>	60	[Ramp increment]	-	<i>0.01</i> <i>0.1</i> <i>1</i>	[0.01]: Ramp can be set between 0.05 s and 327.6 s [0.1]: Ramp can be set between 0.1 s and 3,276 s [1]: Ramp can be set between 1 s and 32,760 s	<i>0.1</i>	
<i>IPL</i>	90	[Input phase loss]	-	<i>n0</i> <i>YES</i>	[No]: Ignore [Yes]: Detected fault management with fast stop	<i>YES</i>	
<i>IEH</i>	30	[Mot. therm. current]	In	<i>0.2</i> to <i>1.5</i>	-	In accordance with the drive rating	
<i>JF2</i>	33	[Skip Frequency 2]	Hz	<i>1</i> to <i>500</i>	-	<i>0</i>	
<i>JGF</i>	33 72	[Jog frequency]	Hz	<i>0</i> to <i>10</i>	-	<i>10</i>	
<i>JOG</i>	72	[JOG]	-	<i>n0</i> <i>L11</i> <i>L12</i> <i>L13</i> <i>L14</i> <i>L15</i> <i>L16</i>	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	<i>n0</i>	
<i>JPF</i>	33	[Skip Frequency]	Hz	<i>0</i> to <i>500</i>	-	<i>0</i>	
<i>LAC</i>	55	[ACCESS LEVEL]	-	<i>L1</i> <i>L2</i> <i>L3</i>	[Level 1]: Access to standard functions [Level 2]: Access to advanced functions in the <i>FUn</i> - menu [Level 3]: Access to advanced functions and management of mixed control modes	<i>L1</i>	
<i>LAF</i>	85	[Stop FW limit sw.]	-	<i>n0</i> <i>L11</i> <i>L12</i> <i>L13</i> <i>L14</i> <i>L15</i> <i>L16</i>	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	<i>n0</i>	
<i>LAr</i>	85	[Stop RV limit sw.]	-	<i>n0</i> <i>L11</i> <i>L12</i> <i>L13</i> <i>L14</i> <i>L15</i> <i>L16</i>	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	<i>n0</i>	
<i>LAS</i>	85	[Stop type]	-	<i>rPP</i> <i>FSt</i> <i>nSt</i>	[Ramp stop]: On ramp [Fast stop]: Fast stop [Freewheel]: Freewheel stop	<i>nSt</i>	
<i>LC2</i>	82	[Current limit 2]	-	<i>n0</i> <i>L11</i> <i>L12</i> <i>L13</i> <i>L14</i> <i>L15</i> <i>L16</i> <i>CD11</i> <i>CD12</i> <i>CD13</i> <i>CD14</i> <i>CD15</i>	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	<i>n0</i>	
<i>LCI</i>	58	[HMI command]	-	<i>n0</i> <i>YES</i>	[No]: Function inactive [Yes]: Enables control of the drive using the STOP/RESET, RUN and FWD/REV buttons on the display terminal	<i>n0</i>	
<i>LCr</i>	97	[Motor current]	A	-	-	-	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
L E L	<u>89</u>	[External fault config]	-	L O H I G	[Active low]: The external fault is detected when the logic input assigned to E L F changes to state 0 [Active high]: The external fault is detected when the logic input or bit assigned to E L F changes to state 1	H I G	
L F F	<u>91</u>	[Fallback speed]	Hz	0 to 500	-	10	
L F L	<u>91</u>	[4-20mA loss]	-	n O Y E S L F F r L S r N P F S L	[Ignore]: Ignore [Freewheel]: Detected fault management with freewheel stop [fallback spd]: The drive switches to the fallback speed. [Spd maint.]: The drive maintains the speed at which it was operating when the fault occurred. [Ramp stop]: Detected fault management with stop on ramp [Fast stop] : Detected fault management with fast stop	Y E S	
L F L	<u>98</u>	[Last fault occurred]	-	b L F C F F C F I C n F C O F C r F E E F E P F I F 1 I F 2 I F 3 I F 4 L F F n O F O b F O C F O H F O L F O P F O S F P H F S C F S O F t n F U S F	[Brake control]: Brake control detected fault [Incorrect config.]: Incorrect configuration [Invalid config.]: Invalid configuration [NETWORK FAULT]: Communication detected fault on the communication card [CANopen com.]: Communication detected fault line 2 (CANopen) [Capa.charg]: Capacitor precharge detected fault [EEPROM]: EEPROM memory detected fault [External]: External fault [INTERNAL FAULT]: Unknown rating [INTERNAL FAULT]: HMI card not recognized or incompatible/display absent [INTERNAL FAULT]: EEPROM detected fault [INTERNAL FAULT]: Industrial EEPROM detected fault [4-20mA]: 4-20 mA loss [No fault]: No fault code saved [Overbraking]: DC bus overvoltage [Overcurrent]: Overcurrent [Drive overheat]: Drive overheating [Motor overload]: Motor overload [Mot. phase]: Motor phase loss [Mains overvoltage]: Line supply overvoltage [Mains phase loss]: Line phase loss [Mot. short circuit]: Motor short-circuit (phase, ground) [Overspeed]: Motor overspeed [Auto-tuning]: Auto-tuning detected fault [Undervoltage]: Line supply undervoltage		
L I 1 A	<u>100</u>	[Config.LI1]	-	-			
L I 2 A	<u>100</u>	[Config.LI2]	-	-			
L I 3 A	<u>100</u>	[Config.LI3]	-	-			
L I 4 A	<u>100</u>	[Config.LI4]	-	-			
L I 5 A	<u>100</u>	[Config.LI5]	-	-	Not applicable		
L I 6 A	<u>100</u>	[Config.LI6]	-	-	Not applicable		
L S P	<u>30</u> <u>81</u>	[Low speed]	Hz	0 to H S P	-	0	
n C r	<u>38</u>	[Rated mot. current]	In	0. 25 to 1. 5	-	In accordance with the drive rating	
n C r 2	<u>84</u>	[Nom. mot. 2 current]	In	0. 25 to 1. 5	-	In accordance with the drive rating	
n r d	<u>41</u>	[Noise reduction]	-	Y E S n O	[Yes]: Frequency with random modulation [No]: Fixed frequency	YES	

Index of parameter codes and customer settings

Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
n 5 P	<u>39</u>	[Rated motor speed]	rpm	0 to 32,760	-	In accordance with the drive rating	
n 5 P 2	<u>84</u>	[Nom. mot. 2 speed]	rpm	0 to 32,760	-	In accordance with the drive rating	
n 5 t	<u>64</u>	[Freewheel stop ass.]	-	n 0 L 11 L 12 L 13 L 14 L 15 L 16	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	n 0	
0 H L	<u>90</u>	[Overtemp fault mgt]	-	n 0 Y E S r P P F S t	[Ignore]: Ignore [Freewheel]: Detected fault management with freewheel stop [Ramp stop]: Detected fault management with stop on ramp [Fast stop]: Detected fault management with fast stop	Y E S	
0 L L	<u>90</u>	[Overload fault mgt]	-	n 0 Y E S r P P F S t	[Ignore]: Ignore [Freewheel]: Detected fault management with freewheel stop [Ramp stop]: Detected fault management with stop on ramp [Fast stop]: Detected fault management with fast stop	Y E S	
0 P L	<u>90</u>	[Output Phase Loss]	-	n 0 Y E S 0 A R C	[No]: Function inactive [Yes]: Tripping on 0 P F [Output cut]: No tripping on [MOTOR PHASE LOSS] (OPF), but output voltage is managed	Y E S	
0 P r	<u>97</u>	[Motor power]	%	-	-	-	
0 t r	<u>98</u>	[Motor torque]	%	-	-	-	
P I C	<u>33</u> <u>77</u>	[PID correct. reverse]	-	n 0 Y E S	[No]: Normal [Yes]: Reverse	n 0	
P I F	<u>77</u>	[PID feedback ass.]	-	n 0 A I 1 A I 2 A I 3	[No]: Not assigned [AI1]: Not applicable [AI2]: Analog input AI2 [AI3]: Analog input AI3	n 0	
P I I	<u>79</u>	[Act. internal PID ref.]	-	n 0 Y E S	[No]: The reference for the PI regulator is F r I , except for U P d H and U P d t [Yes]: The reference for the PI regulator is provided internally via the r P I parameter	n 0	
P r 2	<u>77</u>	[2 preset PID ref.]	-	n 0 L 11 L 12 L 13 L 14 L 15 L 16 C d 11 C d 12 C d 13 C d 14 C d 15	[No]: Not assigned [LI1]: Logic input LI1 [LI2]: Logic input LI2 [LI3]: Logic input LI3 [LI4]: Logic input LI4 [LI5]: Not applicable [LI6]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
P r 4	<u>78</u>	[4 preset PID ref.]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	
P 5 1 6	<u>70</u>	[16 preset speeds]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	
P 5 2	<u>69</u>	[2 preset speeds]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	L 1 3	
P 5 4	<u>69</u>	[4 preset speeds]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	L 1 4	
P 5 8	<u>69</u>	[8 preset speeds]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	
P 5 t	<u>58</u>	[Stop Key priority]	-	n 0 y e s	[No]: Function inactive [Yes]: STOP key priority	y e s	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
<i>r 1</i>	<u>46</u>	[R1 Assignment]	-		Not applicable	<i>F L t</i>	
<i>r 2</i>	<u>46</u>	[R2 Assignment]		<i>n 0</i> <i>F L t</i> <i>r U n</i> <i>F t A</i> <i>F L A</i> <i>C t A</i> <i>S r A</i> <i>t S A</i> <i>b L C</i> <i>A P L</i> <i>L 1 1</i> to <i>L 1 4</i>	[No]: Not assigned [No drive flt]: No drive detected fault [Drv running]: Drive running [Freq.Th.att]: Frequency threshold reached [HSP attain.]: High speed reached [I attained]: Current threshold reached [Freq.ref.att]: Frequency reference reached [Th.mot. att]: Motor thermal threshold reached [Brk control]: Brake sequence [4-20mA]: Not applicable [LI1] to [LI4]: Returns the value of the selected logic input	<i>n 0</i>	
<i>r F C</i>	<u>56</u>	[Ref. 2 switching]	-	<i>F r 1</i> <i>F r 2</i> <i>L 1 1</i> <i>L 1 2</i> <i>L 1 3</i> <i>L 1 4</i> <i>L 1 5</i> <i>L 1 6</i> <i>C 1 1 1</i> <i>C 1 1 2</i> <i>C 1 1 3</i> <i>C 1 1 4</i> <i>C 1 1 5</i> <i>C 2 1 1</i> <i>C 2 1 2</i> <i>C 2 1 3</i> <i>C 2 1 4</i> <i>C 2 1 5</i>	[ch1 active]: Reference 1 [ch2 active]: Reference 2 [LI1]: Logic input LI1 [LI2]: Logic input LI2 [LI3]: Logic input LI3 [LI4]: Logic input LI4 [LI5]: Not applicable [LI6]: Not applicable [C111]: Not applicable [C112]: Not applicable [C113]: Not applicable [C114]: Not applicable [C115]: Not applicable [C211]: Bit 11 of network control word [C212]: Bit 12 of network control word [C213]: Bit 13 of network control word [C214]: Bit 14 of network control word [C215]: Bit 15 of network control word	<i>F r 1</i>	
<i>r F r</i>	<u>97</u>	[Output frequency]	Hz	<i>- 5 0 0</i> to <i>+ 5 0 0</i>	-	-	
<i>r I G</i>	<u>33</u> <u>77</u>	[PID integral gain]	-	<i>0. 0 1</i> to <i>1 0 0</i>	-	<i>1</i>	
<i>r O t</i>	<u>58</u>	[Rotating direction]	-	<i>d F r</i> <i>d r S</i> <i>b O t</i>	[Forward]: Forward [Reverse]: Reverse [Both]: Both directions are authorized	<i>d F r</i>	
<i>r P</i>	<u>93</u>	[Product reset]	-	<i>n 0</i> <i>y E S</i>	[No]: No [Yes]: Yes	<i>n 0</i>	
<i>r P 2</i>	<u>33</u> <u>78</u>	[Preset ref. PID 2]	%	<i>0</i> to <i>1 0 0</i>	-	<i>3 0</i>	
<i>r P 3</i>	<u>33</u> <u>78</u>	[Preset ref. PID 3]	%	<i>0</i> to <i>1 0 0</i>	-	<i>6 0</i>	
<i>r P 4</i>	<u>33</u> <u>78</u>	[Preset ref. PID 4]	%	<i>0</i> to <i>1 0 0</i>	-	<i>9 0</i>	
<i>r P G</i>	<u>33</u> <u>77</u>	[PID prop. gain]	-	<i>0. 0 1</i> to <i>1 0 0</i>	-	<i>1</i>	
<i>r P I</i>	<u>29</u> <u>79</u> <u>97</u>	[Internal PID ref.]	%	<i>0</i> to <i>1 0 0</i>	-	<i>0</i>	
<i>r P r</i>	<u>93</u>	[Operating t. reset]	-	<i>n 0</i> <i>r t H</i>	[No]: No [rst. runtime]: Operating time reset to zero	<i>n 0</i>	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
r P 5	<u>61</u>	[Ramp switch ass.]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6 C d 1 1 C d 1 2 C d 1 3 C d 1 4 C d 1 5	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable [CD11]: Bit 11 of the control word from a communication network [CD12]: Bit 12 of the control word from a communication network [CD13]: Bit 13 of the control word from a communication network [CD14]: Bit 14 of the control word from a communication network [CD15]: Bit 15 of the control word from a communication network	n 0	
r P t	<u>59</u>	[Ramp type]	-	L 1 n S U C U 5	[Linear]: Linear [S ramp]: S ramp [U ramp]: U ramp [Customized]: Customized	L 1 n	
r r 5	<u>45</u>	[Reverse assign.]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 can be accessed if t C C = 2 C . [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	L 1 2	
r 5 C	<u>39</u>	[Cold stator resist.]	-	n 0 1 n 1 t 8 8 8 8	[NO]: Function inactive [Init]: Activates the function Value of cold state stator resistance used	n 0	
r 5 F	<u>88</u>	[Fault reset]	-	n 0 L 1 1 L 1 2 L 1 3 L 1 4 L 1 5 L 1 6	[No]: Not assigned [L11]: Logic input LI1 [L12]: Logic input LI2 [L13]: Logic input LI3 [L14]: Logic input LI4 [L15]: Not applicable [L16]: Not applicable	n 0	
r 5 L	<u>35</u> <u>79</u>	[PID wake up thresh.]	%	0 to 1 0 0	-	0	
r t H	<u>98</u>	[Run time]	Time	-	-	-	
S A 2	<u>67</u>	[Summing ref. 2]	-	n 0 A 1 1 A 1 2 A 1 3 A 1 U 1 L C C n d b n E t	[No]: Not assigned [AI1]: Not applicable [AI2]: Analog input AI2 [AI3]: Analog input AI3 [AI Virtual 1]: Jog dial [HMI]: Reference via the remote display terminal [Modbus]: Not applicable [Com. card]: Reference via network	A 1 2	
S A 3	<u>67</u>	[Summing ref. 3]	-	n 0 A 1 1 A 1 2 A 1 3 A 1 U 1 L C C n d b n E t	[No]: Not assigned [AI1]: Not applicable [AI2]: Analog input AI2 [AI3]: Analog input AI3 [AI Virtual 1]: Jog dial [HMI]: Reference via the remote display terminal [Modbus]: Not applicable [Com. card]: Reference via network	n 0	
S C 5	<u>42</u> <u>46</u> <u>58</u>	[Saving config.]	-	n 0 S t r 1	[No]: Function inactive [Config 1]: Saves the current configuration to EEPROM	n 0	
S d C 1	<u>32</u> <u>65</u>	[Auto DC inj. level 1]	In	0 to 1. 2	-	0. 7	
S d C 2	<u>32</u> <u>66</u>	[Auto DC inj. level 2]	In	0 to 1. 2	-	0. 5	
S d 5	<u>37</u>	[Scale factor display]	-	0. 1 to 2 0 0	-	3 0	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
S F r	37 41	[Switching freq.]	kHz	2. 0 to 16	-	4	
S L L	91	[Modbus fault mgt]			Not applicable	F 5 t	
S L P	31	[Slip compensation]	%	0 to 150	-	100	
S L P 2	36 84	[Slip compensation 2]	%	0 to 150	-	100	
S P 10	34 70	[Preset speed 10]	Hz	0 to 500	-	50	
S P 11	34 71	[Preset speed 11]	Hz	0 to 500	-	55	
S P 12	34 71	[Preset speed 12]	Hz	0 to 500	-	60	
S P 13	34 71	[Preset speed 13]	Hz	0 to 500	-	70	
S P 14	34 71	[Preset speed 14]	Hz	0 to 500	-	80	
S P 15	34 71	[Preset speed 15]	Hz	0 to 500	-	90	
S P 16	34 71	[Preset speed 16]	Hz	0 to 500	-	100	
S P 2	33 70	[Preset speed 2]	Hz	0 to 500	-	10	
S P 3	34 70	[Preset speed 3]	Hz	0 to 500	-	15	
S P 4	34 70	[Preset speed 4]	Hz	0 to 500	-	20	
S P 5	34 70	[Preset speed 5]	Hz	0 to 500	-	25	
S P 6	34 70	[Preset speed 6]	Hz	0 to 500	-	30	
S P 7	34 70	[Preset speed 7]	Hz	0 to 500	-	35	
S P 8	34 70	[Preset speed 8]	Hz	0 to 500	-	40	
S P 9	34 70	[Preset speed 9]	Hz	0 to 500	-	45	
S P d 1	97	[Cust. output value]	-	-	-	-	
S P d 2	97	[Cust. output value]	-	-	-	-	
S P d 3	97	[Cust. output value]	-	-	-	-	
S r F	41	[Speed loop filter]	-	n 0 4 E 5	[No]: Filter remains active [Yes]: Filter suppressed	n 0	
S t R	31	[Fr.Loop.Stab]	%	1 to 100	-	20	
S t R 2	36 84	[Freq. loop stability 2]	%	0 to 100	-	20	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
StP	<u>92</u>	[UnderV. prevention]	-	nD nnS rNP FSt	[No]: Locking of the drive and freewheel stopping of the motor [DC Maintain]: Stop mode using inertia to maintain the drive power supply as long as possible [Ramp stop]: Stop according to the valid ramp [Fast stop]: Fast stop	nD	
St r	<u>74</u>	[Reference saved]	-	nD rAN EEP	[No]: No saving [RAM]: Saving in RAM [EEProm]: Saving in EEPROM	nD	
Stt	<u>62</u>	[Type of stop]	-	rNP FSt nSt dC I	[Ramp stop]: On ramp [Fast stop]: Fast stop [Freewheel]: Freewheel stop [DC injection]: DC injection stop	rNP	
tA1	<u>30</u> <u>60</u>	[Begin Acc round]	%	0 to 100	-	10	
tA2	<u>30</u> <u>60</u>	[End Acc round]	%	0 to (100 - tA1)	-	10	
tA3	<u>30</u> <u>60</u>	[Begin Dec round]	%	0 to 100	-	10	
tA4	<u>30</u> <u>60</u>	[End Dec round]	%	0 to (100 - tA3)	-	10	
tAr	<u>88</u>	[Max. restart time]	-	5 10 30 1h 2h 3h Ct	[5 minutes]: 5 minutes [10 minutes]: 10 minutes [30 minutes]: 30 minutes [1 hour]: 1 hour [2 hours]: 2 hours [3 hours]: 3 hours [Unlimited]: Unlimited	5	
tbr	<u>94</u>	[Modbus baud rate]			Not applicable	19.2	
tCC	<u>27</u> <u>44</u>	[2/3 wire control]	-	2C 3C LOC	[2 wire]: 2-wire control [3 wire]: 3-wire control [Local]: Local control (drive RUN/STOP/RESET)	2C	
tCt	<u>44</u>	[2 wire type]	-	LEL trn PFO	[Level]: State 0 or 1 [Transition]: Change of state (transition or edge) [Fwd priority]: State 0 or 1, "forward" input takes priority over the "reverse" input	trn	
t dC	<u>31</u> <u>64</u>	[DC injection time 2]	s	0.1 to 30	-	0.5	
t dC 1	<u>32</u> <u>65</u>	[Auto DC inj. time 1]	s	0.1 to 30	-	0.5	
t dC 2	<u>32</u> <u>66</u>	[Auto DC inj. time 2]	s	0 to 30	-	0	
tFO	<u>94</u>	[Modbus format]	-		Not applicable	BE1	
tFr	<u>41</u>	[Max frequency]	Hz	10 to 500	-	60	
tHd	<u>97</u>	[Drv. Therm att.]	-	-	-	-	
tHr	<u>97</u>	[Motor thermal state]	-	-	-	-	
tLS	<u>35</u>	[Low speed time out]	s	0 to 999.9	-	0	

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Code	Page	Name	Unit	Value/Possible function		Factory setting	Customer setting
t n L	<u>91</u>	[Autotune fault mgt]	-	n O y E S	[No]: Ignore [Yes]: Detected fault management with drive locked	y E S	
t t d	<u>36</u>	[Motor therm. level]	%	1 to 118	-	100	
t t O	<u>94</u>	[Modbus time out]	s		Not applicable	10	
t U n	<u>40</u>	[Auto tuning]	-	n O y E S d O n E r U n P O n L 11 to L 14	[No]: Auto-tuning not performed [Yes]: Auto-tuning performed as soon as possible [Done]: Use of the values given the last time auto-tuning was performed [Drv running]: Auto-tuning performed every time a run command is sent [Power on]: Auto-tuning performed on every power-up [L11] to [L14]: Auto-tuning performed on the transition from 0 → 1 of a logic input assigned to this function	n O	
t U S	<u>40</u> <u>99</u>	[Auto tuning state]	-	t A b P E n d P r O G F A I L d O n E S t r d	[Not done]: Default stator resistance value used to control the motor [Pending]: Auto-tuning requested but not yet performed [In progress]: Auto-tuning in progress [Failed]: Auto-tuning failed [Done]: Stator resistance measured by the auto-tuning function used to control the motor [Entered R1]: Cold state stator resistance used to control the motor	t A b	
U d P	<u>99</u>	[Drv.Soft.Ver]	-	-	-	-	
U F r	<u>30</u>	[IR compensation]	%	0 to 100	-	20	
U F r 2	<u>35</u> <u>84</u>	[IR compensation 2]	%	0 to 100	-	20	
U F t	<u>41</u>	[U/F mot 1 selected]	-	L P n n L d	[Cst. torque]: Constant torque [Var. torque]: Variable torque [SVC]: Flux vector control [Energy sav.]: Energy saving	n	
U F t 2	<u>84</u>	[U/F mot.2 selected]	-	L P n n L d	[Cst. torque]: Constant torque [Var. torque]: Variable torque [SVC]: Flux vector control [Energy sav.]: Energy saving	n	
U L n	<u>97</u>	[Mains voltage]	V	-	-	-	
U n S	<u>38</u>	[Rated motor volt.]	V	-	-	In accordance with the drive rating	
U n S 2	<u>83</u>	[Nom. mot. 2 volt.]	V	-	-	In accordance with the drive rating	