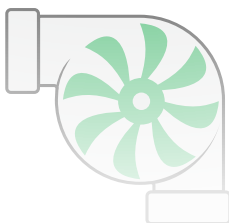
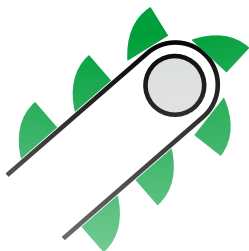
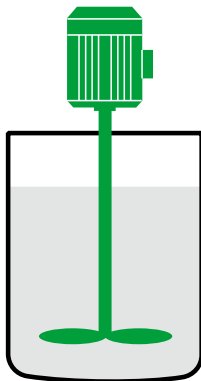
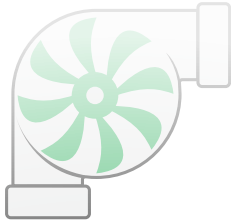


# **Nidec**

*All for dreams*



*Quick user guide - Menu 0  
with preset configurations*

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**Commander ID300/302**

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*Integrated drive for IMfinity<sup>®</sup>  
motors*

Référence : 5691en - 2018.03 / a

**LEROY-SOMER<sup>™</sup>**

## NOTE

LEROY-SOMER reserves the right to modify the characteristics of its products at any time in order to incorporate the latest technological developments. The information contained in this document may therefore be changed without notice.

## WARNING

If accidentally starting the installation is likely to cause a risk to personnel or the machines being driven, it is essential to supply the equipment via a circuit-breaking device (power contactor) which can be controlled via an external safety system (emergency stop, detection of errors on the installation).

The Commander ID300/302 is fitted with safety devices which, in the event of a problem, control stopping and thus stop the motor. The motor itself can become jammed for mechanical reasons. Voltage fluctuations, and in particular power cuts, may also cause the motor to stop. The removal of the causes of the shutdown can lead to restarting, which may be dangerous for certain machines or installations.

In such cases, it is essential that the user takes appropriate precautions against the motor restarting after an unscheduled stop.

The variable speed drive is designed to be able to supply the motor and the driven machine above its rated speed.

If the motor or the machine are not mechanically designed to withstand such speeds, the user may be exposed to serious danger resulting from their mechanical deterioration. Before programming a high speed, it is important that the user checks that the installation can withstand it.

The Commander ID300/302 which is the subject of this manual is designed to be integrated in an installation or an electrical machine, and can under no circumstances be considered to be a safety device. With the sole exception of the Safe Torque Off (Commander ID302 only), none of the drive functions must be used to ensure safety of personnel, i.e. they must not be used for safety-related functions. It is therefore the responsibility of the machine manufacturer, the designer of the installation or the user to take all necessary precautions to ensure that the system complies with current standards, and to provide any devices required to ensure the safety of equipment and personnel.

**LEROY-SOMER declines all responsibility in the event of the above recommendations not being observed.**

.....  
This manual describes the user Menu (Menu 0) of the Commander ID300/302 drive.

**For more information about the Commander ID300/302, please use the web address [www.commanderID300.info](http://www.commanderID300.info).**



•Throughout the manual, this symbol warns of consequences which may arise from inappropriate use of the Commander ID300/302 (motor or drive), since electrical risks may lead to material or physical damage as well as constituting a fire hazard.

#### 1 - General

The Commander ID300/302 may contain moving parts, as well as hot surfaces, during operation.

Unjustified removal of protection devices, incorrect use, faulty installation or inappropriate operation could represent a serious risk to personnel and equipment.

For further information, consult the manual.

All work relating to transportation, installation, commissioning and maintenance must be performed by experienced, qualified personnel (see IEC 364, CENELEC HD 384 or DIN VDE 0100, as well as national specifications for installation and accident prevention).

In these basic safety instructions, qualified personnel means persons competent to install, mount, commission and operate the product and possessing the relevant qualifications.

#### 2 - Use

Commander ID300/302 motors and drives are components designed for integration in installations or electrical machines. When integrated in a machine, commissioning must not take place until it has been verified that the machine conforms with directive 2006/42/EC (Machinery Directive). It is also necessary to comply with standard EN 60204, which stipulates in particular that electrical actuators (which include Commander ID300/302) cannot be considered as circuit-breaking devices and certainly not as isolating switches.

Commissioning can take place only if the requirements of the Electromagnetic Compatibility Directive (EMC 2014/30/EC) are met.

The Commander ID300/302 meet the requirements of the Low Voltage Directive 2014/35/EU. The harmonized standards of the DIN VDE 0160 series in connection with standard VDE 0660, part 500 and EN 60146/VDE 0558 are also applicable.

The technical characteristics and instructions concerning the connection conditions specified on the nameplate and in the documentation provided must be observed without fail.

#### 3 - Transportation, storage

All instructions concerning transportation, storage and correct handling must be observed.

The climatic conditions specified in the technical manual must be observed.

#### 4 - Installation

The installation and cooling of equipment must comply with the specifications in the manual supplied with the product.

Commander ID300/302 must be protected against any excessive stress. In particular, there must be no damage to parts and/or modification of the clearance between components during transportation and handling. Avoid touching the electronic components and contact parts.

The Commander ID300/302 contain parts which are sensitive to electrostatic stresses and may be easily damaged if handled incorrectly. Electrical components must not be exposed to mechanical damage or destruction (risks to health!).

#### 5 - Electrical connection

When work is performed on Commander ID300/302 which are powered up, the national accident prevention regulations must be respected.

The electrical installation must comply with the relevant specifications (for example conductor cross-sections, protection via fused circuit-breaker, connection of protective conductor). More detailed information is given in the manual.

Instructions for an installation which meets the requirements for electromagnetic compatibility, such as screening, earthing, presence of filters and correct insertion of cables and conductors, are given in the documentation supplied with the Commander ID300/302. These instructions must be followed in all cases, even if the Commander ID300/302 carries the CE mark.

Adherence to the limits given in the EMC legislation is the responsibility of the manufacturer of the installation or the machine.

#### 6 - Operation

Installations incorporating Commander ID300/302 must be fitted with additional protection and monitoring devices as laid down in the current relevant safety regulations, such as the law on technical equipment, accident prevention regulations, etc. Modifications to the Commander ID300/302 using control software are permitted.

Active parts of the device and the live power connections must not be touched immediately after the Commander ID300/302 is powered down, as the capacitors may still be charged. In view of this, the warnings fixed to the variable speed drives must be observed.

#### 7 - Servicing and maintenance

Refer to the manufacturer's documentation.

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# 1 - INTRODUCTION

This guide describes the user Menu (Menu 0) and its preset configurations. It is an easy way to commission the drive for most common applications.

It is an extract from the Commander ID300/302 User and technical guide (ref.5512).

In the case of more specific applications that need dedicated motor control or functions, the user can refer to the parameter reference guide (html) for detailed explanation of the parameters or to Connect software.

To download the guide ref.5512 or html files of the Commander ID300/302, please use the web address [www.commanderID300.info](http://www.commanderID300.info).

**⚠ • The drives use an algorithm which is adjusted by parameters. The performance levels obtained depend on the parameter setting. Inappropriate settings may have serious consequences for personnel and machinery.**

• The drive parameters must only be set by appropriately qualified and experienced personnel.

• Before powering up the drive, check that the power connections are correct, and that any moving parts are mechanically protected.

• Before setting the drive parameters, all instructions relating to safety instructions, installation and connection contained in the installation document supplied with the Commander ID300/302 ref.5511 must have been strictly observed ([www.commanderID300.info](http://www.commanderID300.info)).

• Users of the drive should take particular care to avoid starting it accidentally.

## 1.1 - How to set the drive

The user interfaces which can be used to set or monitor the Commander ID300/302 are:

- **ID-SIZE1-Keypad** for size 1 and 2 drives or **ID-SIZE3-Keypad** for size 3 drive  
Keypad integrated to the cover, with LCD display.
- **Field Keypad RTC**: Remote keypad with LCD display and Real Time Clock function (lead included; SELV classified).
- **Connect software**: Windows-based software to commission and monitor the drive. (downloadable from [www.commanderID300.info](http://www.commanderID300.info))

## 1.2 - Language selection

### 1.2.1 - ID-SIZEEx-Keypad and Field Keypad RTC

To enter the keypad set-up menu press and hold the escape **⏏** button on the keypad from status mode. Any keypad parameter is saved to the keypad non-volatile memory when exiting from the keypad set-up menu.

If needed, select the correct language displayed by the keypad by setting **Keypad.00** parameter (English is the default language).

To exit from the keypad set-up menu press the escape **⏏** or **⏏** or **⏏** button.

<b>Keypad.00</b>	Language		
Read-Write	↑	English, Français, Deutsch, Italiano, Español	→ English

### 1.2.2 - Connect software

Once the software is installed, go to File tab, click on the Language menu. Select your language in the drop-down list and click OK.

For the new language to be taken in account, close the software and open it again.

## 2 - SPECIFICITIES

### 2.1 - Commander ID302

The Commander ID302 has got two Safe Torque Off inputs (not the Commander ID300).

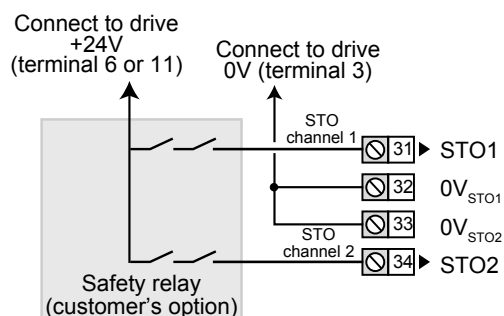
The drive enable is performed using terminal 8 (DI2) on Commander ID300 and terminals 31 and 34 on Commander ID302.

In this guide, the specific connection of STO inputs of the Commander ID302 will not be detailed in control connection diagrams of each preset configuration (section 3.6, page 21). So, refer to the STO connection diagram below. It will be valid for all preset configurations.

#### NOTE

By default, the terminal 8 (DI2) is not assigned for the Commander ID302 (except for "3PS/1Ana brake" configuration).

#### • STO terminal connections



### 2.2 - Brake Control option (ID-SIZEx-Brake Contactor)

The Brake Control option (ID-SIZE1-Brake Contactor or ID-SIZE3-Brake Contactor depending of drive size) is designed to control the FFB brake of the motor.

All power connections between the brake and the drive are already made at factory. The only remaining connections are the ones of the power supply.

For more details on power connections with this option fitted, please refer to section 3.5 of the Installation and Quick commissioning guide ref.5511.

**!** Brake function parameters of Commander ID300/302 are set at factory. This avoids any extra settings for the customer. But if drive default parameter values are restored during commissioning, the factory preset parameters will be lost and set back to their default value (except the ones of the motor rating). If nevertheless it is necessary to restore parameter default values, it is strongly recommended to set the parameters as the same as already done at factory, see the relevant settings in the table hereafter. This will ensure a correct operation of the brake.

mounted at factory	Factory set parameters		
	Function	Pr	Value
FFB brake and ID-SIZEx-Brake Contactor w/o thermistor	Drive configuration	<b>00.005 (11.034)</b>	AV with brake (12)*
	ADI2 thermistor mode	<b>00.014 (07.045)</b>	Therm No Trip(3)
FFB brake and ID-SIZEx-Brake Contactor with thermistor	Drive configuration	<b>00.005 (11.034)</b>	AV with brake (12)*

\* 3PS/1Ana brake configuration can be set by the user, depending of the requirements of the application and if a motor thermistor is fitted or not. For more details about preset configurations, please refer to *section 3.6, page 21*.

### 2.3 - Braking (ID-SIZEx-DBR)

Braking occurs when the drive is decelerating the motor, or is preventing the motor from gaining speed due to mechanical influences. During braking, energy is returned to the drive from the motor.

If the drive is expected to rapidly decelerate a load, or to hold back an overhauling load, a braking resistor must be installed.

Three optional braking resistors are available for the Commander ID300/302. These dedicated braking resistors have thermal protection included. See the tables below for their ratings and associated parameter settings.

Drive size	Braking resistor reference	Power (W)	Resistance value (Ω)
1	ID-SIZE1-DBR	200	400
2	ID-SIZE2-DBR		200
3	ID-SIZE3-DBR		100

Drive size	Braking resistor reference	Pr 10.030	Pr 10.031	Pr 10.061
1	ID-SIZE1-DBR	0.2	36	400
2	ID-SIZE2-DBR	0.2	36	200
3	ID-SIZE3-DBR	0.2	42	100

**!** If an optional braking resistor is fitted to the drive, the drive is set at factory to enable its protection. If drive default parameter values are restored, Pr 10.030, 10.031 and 10.061 are set back to their default values. In that case, you should set the right values again to protect the braking resistor.

## 3 - MENU 0 AND PRESET CONFIGURATIONS

**!** • The parameter values affect the motor protection and the safety of the system. Do not change parameter values without careful consideration. Incorrect values may cause damage or a safety hazard.

• Parameters dedicated to motor rating are already set at factory. The change from one configuration to another does not affect motor parameters already set.

• The Commander ID300/302 has low DC bus capacitance (film capacitors) which can induce voltage ripple on the DC bus with low load conditions. Default settings of the drive addresses this phenomenon; for more dynamic applications, it is advisable to adapt the setting. For more details, please refer to the user and technical guide ref.5512.

### 3.1 - Menu 0 structure

Menu 0 allows an easy and quick setting of the drive for typical applications. All parameters of Menu 0 appear in other menus (advanced menus) which can provide more precise settings.

The Commander ID300/302 allows the user to select a preset configuration via Pr **00.005** resulting in automatic configuration of the control terminal blocks and menu 0 is then adapted with dedicated parameters from Pr **00.011** to Pr **00.029**. It is therefore advisable to select the correct configuration corresponding to the application and follow the associated commissioning procedure (detailed in *section 3.6, page 21*).

If no preset configuration suits your application, refer to the advanced parameter guide (html files) which can be downloaded from [www.commanderID300.info](http://www.commanderID300.info).

#### CAUTION

**Before selecting a preset configuration by Pr 00.005, the drive must be disabled (open terminal 8 or terminals 31 & 34). With Connect software, ensure you are "On line" for the parameters to be pre-configured accordingly in the software.**

### 3.2 - Menu 0 parameter list


Parameter		Function	Range	Default value	
Menu 0	Adv. menu				
<b>Common parameters</b>					
00.001	01.007	Minimum Speed	0.00 to Pr 00.002	10.00 Hz	
00.002	01.006	Maximum Speed	0.00 to 150.00 Hz	<ul style="list-style-type: none"> <li>• 50.00 Hz</li> <li>• 80 Hz for gear-motor<sup>(1)</sup></li> </ul>	
00.003	02.011	Acceleration Rate	0.0 to 32000.0 s/100 Hz	5.0 s/100 Hz	
00.004	02.021	Deceleration Rate		10.0 s/100 Hz	
00.005	11.034	Drive Configuration	STANDARD AV/AI (11), AV with brake (12), 3PS/1Ana brake (13), 3PS/1Ana Nobrake (14), 8 Preset (15), Keypad (16), Keypad Ref (17), Electronic Pot (18), Torque Control (19), Pid Control (20), Local/Remote (21), Pump (22)	STANDARD AV/AI (11)	
00.006	05.007	Motor Rated Current	0.00 to Drive rating (A)	Dependent of the motor. Factory-set	
00.007	05.008	Motor Rated Speed	0.0 to 9000.0 rpm		
00.008	05.009	Motor Rated Voltage	0 to 240 V or 0 to 480 V		
00.009	05.010	Motor Rated Power Factor	0.00 to 1.00		
00.010	11.044	User Security Status	Level 1 (0), Level 2 (1), All Menus (2), Status Only (4), No Access (5)	Level 1	
<b>Preset configuration parameters</b>					
00.011 to 00.029	Pr 00.011 to 00.029 functions are dependent of Pr 00.005 setting. For more details, refer to the dedicated section.				
	<b>STANDARD AV/AI</b>	<b>AV with brake</b>	<b>3PS/1Ana brake</b>	<b>3PS/1Ana Nobrake</b>	
	Voltage (ADI1) or current (ADI2) frequency reference selected by terminal  See section 3.6.1, page 21	Voltage frequency reference (ADI1) and motor PTC with Brake option  See section 3.6.2, page 25	Voltage frequency reference (ADI1) or 3 preset references selected by terminals with Brake option  See section 3.6.3, page 31	Voltage frequency reference (ADI1) or 3 preset references selected by terminals (without Brake option)  See section 3.6.4, page 36	
	<b>8 Presets</b>	<b>Keypad</b>	<b>Keypad Ref</b>	<b>Electronic Pot</b>	
	Eight preset references selected by terminals  See section 3.6.5, page 39	Keypad reference and control  See section 3.6.6, page 42	Keypad reference with terminal control  See section 3.6.7, page 45	Electronic Potentiometer  See section 3.6.8, page 48	
	<b>Torque Control</b>	<b>PID Control</b>	<b>Local/Remote</b>	<b>Pump</b>	
	Voltage frequency reference (ADI1) or Voltage torque reference (ADI2) selected by terminal  See section 3.6.9, page 51	Voltage reference source (ADI1) and voltage feedback source (ADI2)  See section 3.6.10, page 54	Voltage frequency reference (ADI1) with terminal control or Keypad reference with Keypad control selected by terminal  See section 3.6.11, page 57	Pump application (Commander ID300 only)  See section 3.6.12, page 60	
	<b>Common parameters</b>				
	00.030	02.004	Ramp Mode Select	Fast (0), Standard (1), Std boost (2), Fast boost (3)	Fast (0)
	00.031	06.001	Stop Mode	Coast (0), Ramp (1), Ramp dc I (2), dc I (3), Timed dc I (4), Disable (5)	Ramp (1)
00.032	05.013	Dynamic V to F Select	0 or 1	1	

<sup>(1)</sup> 80 Hz value is set at factory for all gear-motor associations. If drive default parameter values are restored, Pr 00.002(01.006) is set back to 50 Hz.

 Shows parameters dependent on the motor rating and already set by default. No need to edit them.

**MENU 0 AND PRESET CONFIGURATIONS**

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.033	06.009	Catch A Spinning Motor	Disable (0), Enable (1), Fwd Only (2), Rev Only (3)	Disable (0)
00.034	01.010	Bipolar Reference Enable	0 or 1	0
00.035	08.081	DI1 Control	0 to 26	0
00.036	-	Not used		
00.037	05.018	Maximum Switching Frequency	2 (2); 3 (3); 4 (4); 6 (5); 8 (6); 12 (7); 16 (8) kHz	3 (3) kHz
00.038	05.012	Autotune	0 to 2	0
00.039	05.006	Motor Rated Frequency	0.00 to 150.00 Hz	50.00 Hz
00.040	05.011	Number of Motor Poles	0 to 16	0
00.041	05.014	Control Mode	Ur S (0), Ur (1), Fixed (2), Ur Auto (3), Ur I (4), Square (5), Fixed Tapered (6)	Ur I (4)
00.042	05.015	Low Frequency Voltage Boost	0.0 to 25.0 %	3.0 %
00.043	11.025	Serial Baud Rate	600 (1), 1200 (2), 2400 (3), 4800 (4), 9600 (5), 19200 (6), 38400 (7), 57600 (8), 76800 (9), 115200 (10) bauds	115200 (10) bauds
00.044	11.023	Serial Address	1 to 247	1
00.045	11.020	Reset Serial communications	Off or On	Off
<b>Brake control parameters</b>				
00.046	12.042	Upper Current Threshold	0 to 200 %	50 %
00.047	12.043	Lower Current Threshold	0 to 200 %	10 %
00.048	12.044	Brake Release Frequency	0.00 to 20.00 Hz	1.00 Hz
00.049	12.045	Brake Apply Frequency	0.00 to 20.00 Hz	2.00 Hz
00.050	12.046	Brake Release Delay	0.0 to 25.0 s	0.1 s
00.051	12.047	Post-brake Release Delay	0.0 to 25.0 s	0.1 s
00.052	12.040	Brake Release	0 or 1	-
00.053	12.050	Initial Direction	Ref (0), Forward (1), Reverse (2)	Ref (0)
00.054	12.051	Brake Apply Through Zero Threshold	0.00 to 20.00 Hz	1.00 Hz
00.055	12.041	Brake Controller Enable	Disable (0), Relay (1), Digital IO (2), User (3)	Disable (0)
<b>Common parameters</b>				
00.056	10.020	Trip 0	0 to 255	-
00.057	10.021	Trip 1	0 to 255	-
00.058	10.022	Trip 2	0 to 255	-
00.059	11.047	Onboard User Program (OUP) Enable	Stop (0) or Run (1)	Run (1)
00.060	11.048	OUP Status	-2147483648 to 2147483647	-
00.061	11.030	User Security Code	0 to 9999	0
00.062	11.019	Status Mode Parameter 2	0.000 to 30.999	<b>4.020</b>
00.063	11.018	Status Mode Parameter 1	0.000 to 30.999	<b>2.001</b>
00.064	11.021	Customer defined scaling	0.000 to 10.000	1.000
00.065 to 00.068		Not used		
00.069	05.040	Spin Start Boost	0.0 to 10.0	1.0
00.070 to 00.075		Not used		
00.076	10.037	Action on Trip Detection	0 to 31	0
00.077	11.032	Maximum Current Rating	0.00 to 9999.99 A	-

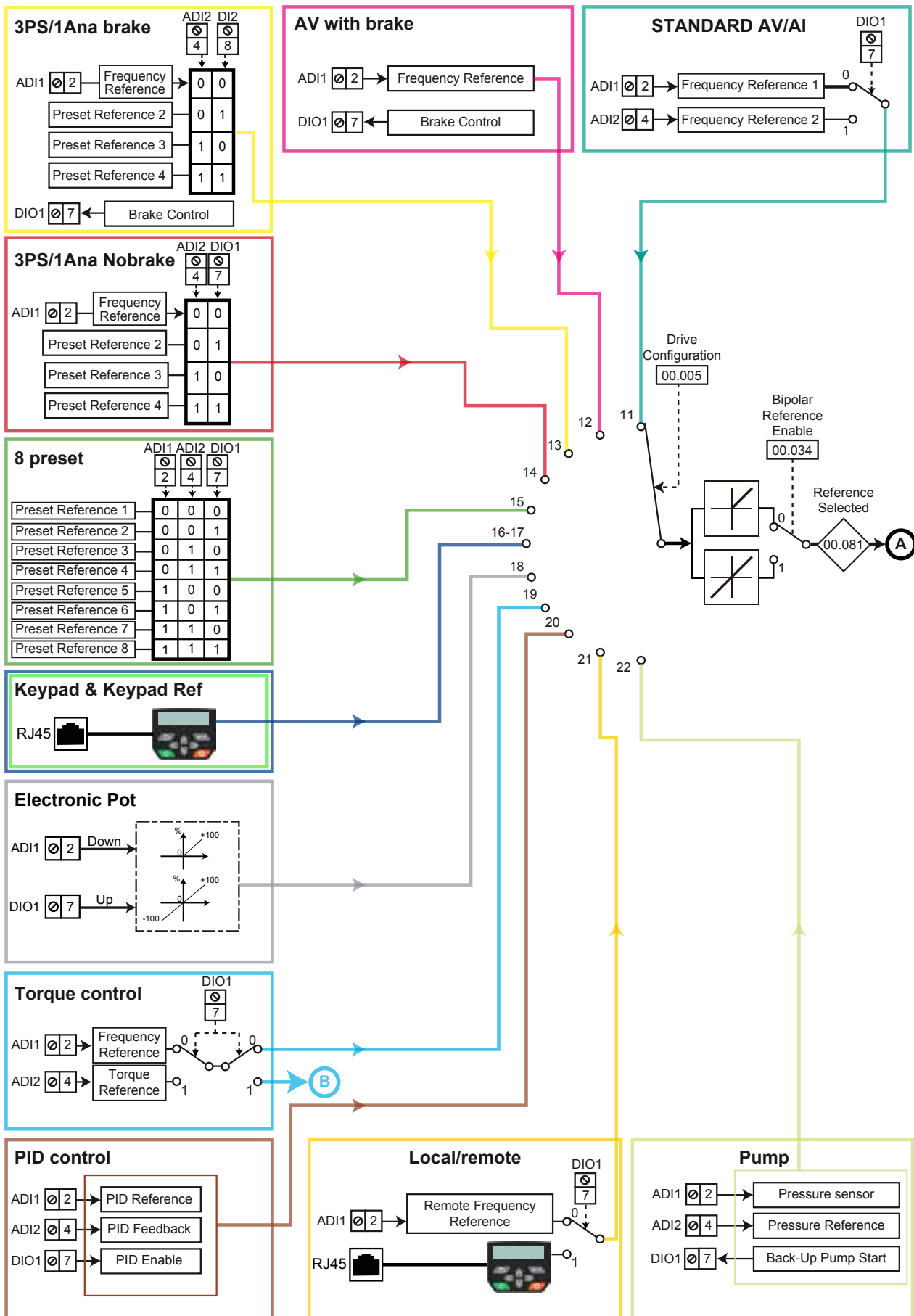
 Shows parameters dependent on the motor rating and already set by default. No need to edit them.

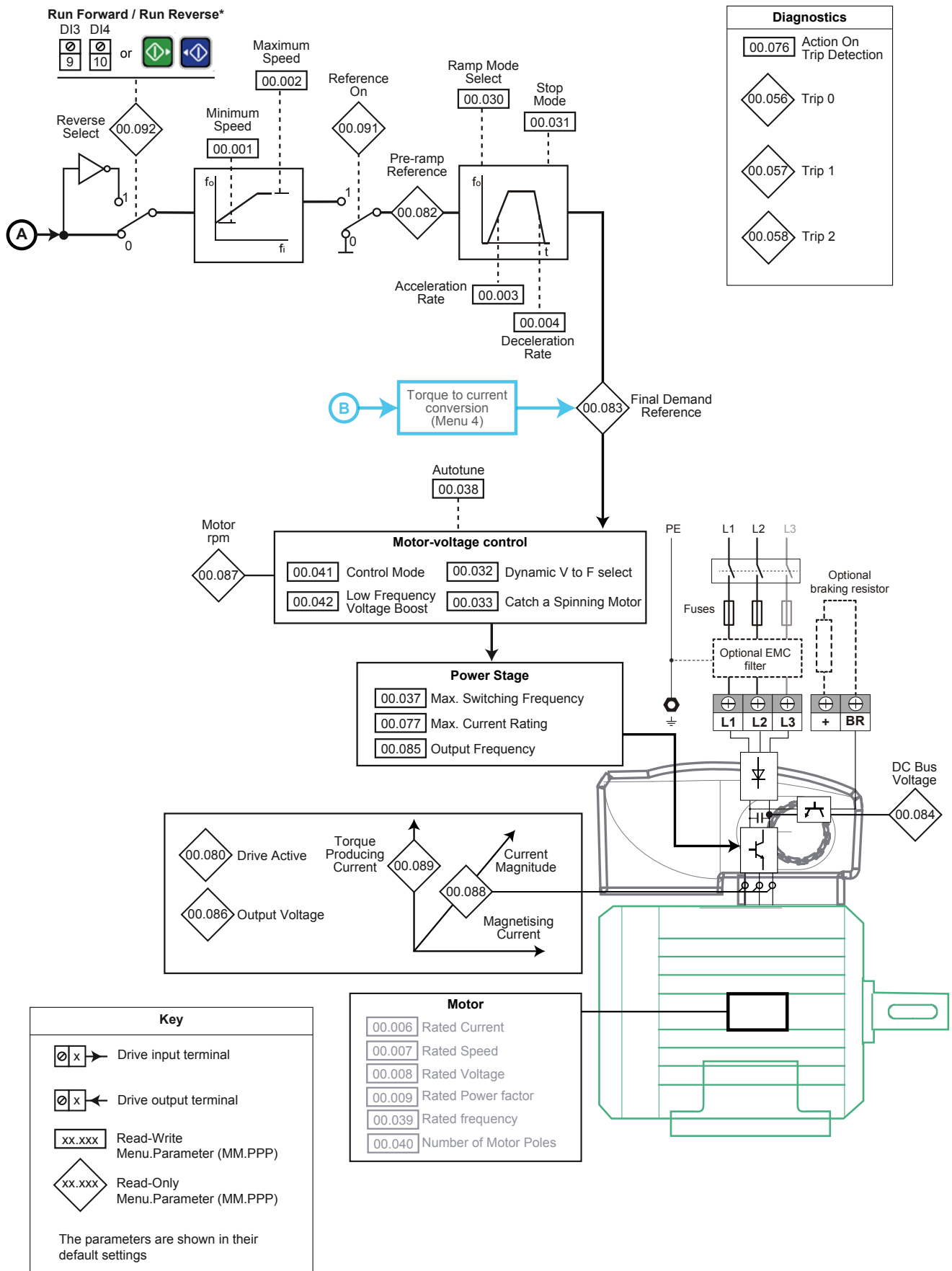


**MENU 0 AND PRESET CONFIGURATIONS**

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.078	11.029	Software Version	0 to 999999	-
00.079	-	Not used		
00.080	10.002	Drive active	0 or 1	-
00.081	01.001	Reference selected	± Pr 00.002 or Pr 00.001 to Pr 00.002 (Hz)	-
00.082	01.003	Pre-ramp Reference		-
00.083	03.001	Final Demand Reference		-
00.084	05.005	D.C. Bus Voltage	0 to 415 V or 0 to 900 V	-
00.085	05.001	Output Frequency	± 150.00 (Hz)	-
00.086	05.002	Output Voltage	0 to 325 V or 0 to 650 V	-
00.087	05.004	Motor Rpm	± 9000 rpm	-
00.088	04.001	Current Magnitude	0 to Drive Maximum Current (A)	-
00.089	04.002	Torque Producing Current	± Drive Maximum Current (A)	-
00.090	08.020	Digital I/O Read Word	0 to 1023	-
00.091	01.011	Reference On	Off or On	-
00.092	01.012	Reverse Select	Off or On	-
00.093	-	Not used		
00.094	07.001	Analog/Digital Input 1	± 100.00 %	-
00.095	07.002	Analog/Digital Input 2	± 100.00 %	-

### 3.3 - Menu 0 logic diagram





\* DI4 Run Reverse is not available with Menu 0 of Pump Configuration.

### 3.4 - Explanations of symbols used for parameters

**00.005**  
**(11.034)**

A number in bold refers to a menu number and a parameter number within the menu. Its structure is MM.PPP\*

(\*) MM is the Menu number and PPP is the parameter number. For a Menu 0 parameter, the equivalent parameter from the advanced menu is shown in brackets.

**00.005** : Parameters which appear in a rectangle are parameters with Read and Write access.

**00.029** : Parameters which appear in a diamond are parameters with Read Only access and are write-protected.

↕ : Indicates the range of a parameter.

→ : Indicates the default value of a parameter. When it is a Read Only parameter, a "-" is present in the relevant location as there is no default value available.

### 3.5 - Menu 0 parameter explanations

#### **00.000** Parameter 0 functions

Parameter zero allows the user to perform some specific actions by only entering a text string or a value in Pr **00.000**.

Commonly used functions of this parameter are provided as text strings and other functions are only provided as numeric values. They are also available from parameter zero of any advanced menu (Pr **mm.000** where mm is the menu number).

All functions require a drive reset to initiate the function except "Destinations" and "Reset modules".

Value	string	Action
0	No action	No action
1000	-	Save parameters when Under Voltage Active (Pr <b>10.016</b> ) is not active.
1001	Save parameters	Save drive parameters to non-volatile memory
1070	Reset modules	Reset option module
1233	Reset 50Hz defs	Load 50Hz defaults
12000	Show non-default	Only display parameters that are different from their default value
12001	Destinations	Only display parameters that are used to set-up destinations
59999	-	Deletes onboard user program if a program is present <b>NOTE</b> It cannot be deleted if the drive is active or if the user program is running. To stop the program, set Pr <b>00.059</b> to Stop(0).

**!** Some parameters of Commander ID300/302 are set at factory to take in account the specificities of the motor, the drive and the options already fitted at factory. This avoids any extra settings for the customer. But if drive default parameter values are restored (Pr 00.000 = 1233) during commissioning, the factory preset parameters will be lost and set back to their default value (except the ones of the motor rating).

If nevertheless it is necessary to restore parameter default values, it is strongly recommended to set the parameters as the same as already done at factory, see the relevant settings in the table below. This will ensure a correct operation of the brake and a correct protection of the braking resistor.

Mounted or fitted at factory	Factory set parameters		
	Function	Pr	Value
• Gear-motor	Maximum speed	<b>00.002</b>	80 Hz
• ID-SIZE1-DBR • ID-SIZE2-DBR • ID-SIZE3-DBR (Optional braking resistors)	BR rated power	<b>10.030</b>	0.2 kW
	BR thermal time constant	<b>10.031</b>	Sizes 1&2: 36.00 s Size 3: 42.00 s
	BR resistance	<b>10.061</b>	Size 1: 400.00 Ω Size 2: 200.00 Ω Size 3: 100.00 Ω

Mounted or fitted at factory	Factory set parameters		
	Function	Pr	Value
• Thermistor w/o brake, STANDARD AV/AI config. by default	ADI2 thermistor mode	<b>00.014</b>	Thermistor(2)
FFB brake and ID-SIZEx-Brake Contactor w/o motor thermistor	Drive configuration	<b>00.005</b>	AV with brake (12)
	ADI2 thermistor mode	<b>00.014</b>	Therm No Trip(3)
FFB brake and optional ID-SIZEx-Brake Contactor with motor thermistor	Drive configuration	<b>00.005</b>	AV with brake (12)

<b>00.001 (01.007)</b>	Minimum Speed		
Read-Write	↓	0.00 to Pr <b>00.002</b>	→ 10.00 Hz

Set Pr **00.001** at the required minimum output frequency of the drive for both directions of rotation. The drive speed reference is scaled between Pr **00.001** and Pr **00.002**. Pr **00.001** is a nominal value; slip compensation may cause the actual frequency to be higher.

<b>00.002 (01.006)</b>	Maximum Speed		
Read-Write	↓	0.00 to 150.00 Hz	→ 50.00 Hz*

\* 80.00 Hz for a gear-motor

Set Pr **00.002** at the required maximum output frequency for both directions of rotation. The drive speed reference is scaled between Pr **00.001** and Pr **00.002**. Pr **00.002** is a nominal value; slip compensation may cause the actual frequency to be higher. The drive has additional over-speed protection.

<b>00.003 (02.011)</b>	Acceleration Rate		
Read-Write	↓	0.00 to 150.00 Hz	→ 5.0 s/100 Hz

Set Pr **00.003** at the required rate of acceleration. Note that larger values produce lower acceleration. The rate applies in both directions of rotation.

<b>00.004 (02.021)</b>	Deceleration Rate		
Read-Write	↓	± VM_ACCEL_RATE (s/100 Hz)	→ 10.0 s/100 Hz

Set Pr **00.004** at the required rate of deceleration. Note that larger values produce lower deceleration. The rate applies in both directions of rotation.

<b>00.005 (11.034)</b>	Drive Configuration		
Read-Write	↓	See table below	→ STANDARD AV/AI

Use Pr **00.005** to select the required drive preset configuration. This will automatically adapt control terminals and parameters **00.011** to **00.029** functions.

Before selecting a preset configuration, ensure the drive is disabled (open terminal 8 or 31/34) and Connect software is "On line" with the drive (for the auto-configuration to take place correctly).

For more details about drive preset configurations, refer to section 3.6, page 21.

Value	string	Action
11	STANDARD AV/AI	Voltage (ADI1) or current (ADI2) frequency reference selected by terminal
12	AV with Brake	Voltage frequency reference (ADI1) and motor PTC with Brake option
13	3PS/1Ana Brake	Voltage frequency reference (ADI1) or 3 preset references selected by terminals with Brake option - More dedicated to Commander ID302
14	3PS/1Ana NoBrake	Voltage frequency reference (ADI1) or 3 preset references selected by terminals (without Brake option)
15	8 Presets	Eight preset references selected by terminals
16	Keypad	Keypad reference and control
17	Keypad Ref	Keypad reference with terminal control
18	Electronic Pot	Electronic Potentiometer
19	Torque Control	Voltage frequency reference (ADI1) or voltage torque reference (ADI2) selected by terminal
20	Pid Control	Voltage reference source (ADI1) and voltage feedback source (ADI2)
21	Local/ Remote	Voltage frequency reference (ADI1) with terminal control or keypad reference with keypad control selected by terminal
22	Pump	Pump application (available for Commander ID300 only)

<b>00.006 (05.007)</b>	Motor Rated Current		
Read-Write	↓	0.00 to Drive rating (A)	→ Dependent of the motor

This parameter is set to the continuous current of the motor, taken from the name plate.

**CAUTION**

**Already set at factory.**

**The motor rated current is used in current limits, motor thermal overload protection, vector mode voltage control, slip compensation and dynamic V/F control.**

<b>00.007 (05.008)</b>	<b>Motor Rated Speed</b>
Read-Write ↓	0.0 to 9000.0 rpm → Dependent of the motor

This parameter is set to the rated speed of the motor, taken from the motor name plate. The motor rated speed is used to calculate the correct slip speed for the motor.

**CAUTION**  
Already set at factory.

<b>00.008 (05.009)</b>	<b>Motor Rated Voltage</b>
Read-Write ↓	0 to 240 V or 0 to 480 V → Dependent of the motor

The Rated Voltage Pr **00.008** and the Rated Frequency Pr **00.039** are used to define the voltage to frequency characteristic applied to the motor.

**CAUTION**  
Already set at factory.

<b>00.009 (05.010)</b>	<b>Motor Rated Power Factor</b>
Read-Write ↓	0.00 to 1.00 → Dependent of the motor

This parameter is set to the motor rated power factor  $\cos \varphi$ , taken from the motor name plate. The drive can measure the motor rated power factor by performing a rotating autotune (see Pr **00.038** if necessary).

**CAUTION**  
Already set at factory.

<b>00.010 (11.044)</b>	<b>User Security Status</b>
Read-Write ↓	See table below → Level 1

This parameter controls parameter access via the integrated or remote drive keypad (if present) as follows:

Value	Mode	Function
0	Level 1	Access to first 10 parameters in Menu 0 only
1	Level 2	All parameters in Menu 0 are visible and available for editing.
2	All Menus	Parameters in all menus are visible and available for editing.
3	Status Only	The keypad remains in status mode, no parameters can be viewed or edited.
4	No Access	The keypad remains in status mode, no parameters can be viewed or edited. Drive parameters cannot be accessed via a comms/fieldbus interface in the drive.

<b>00.011 to 00.029</b>	<b>Preset configuration parameters</b>
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As these parameters are dependent of the selected preset configuration (see Pr **00.005**), relevant parameter explanations are located with each preset configuration details, refer to dedicated sections as follows:

Preset configuration	Section
STANDARD AV/AI	section 3.6.1, page 21
AV with brake	section 3.6.2, page 25
3PS/1Ana brake	section 3.6.3, page 31
3PS/1Ana Nobrake	section 3.6.4, page 36
8 Presets	section 3.6.5, page 39
Keypad	section 3.6.6, page 42
Keypad Ref	section 3.6.7, page 45
Electronic Pot	section 3.6.8, page 48
Torque Control	section 3.6.9, page 51
Pid Control	section 3.6.10, page 54
Local/Remote	section 3.6.11, page 57
Pump	section 3.6.12, page 60

Before selecting a preset configuration, ensure the drive is disabled (open terminal 8 or 31/34) and Connect software is "On line" with the drive (for the auto-configuration to take place correctly).

<b>00.030 (02.004)</b>	<b>Ramp Mode Select</b>
Read-Write ↓	Fast(0), Standard(1), Std boost(2), Fast boost(3) → Fast(0)

This parameter defines the mode used by the drive ramp system.

Value	Mode	Function
0	Fast	Fast ramp is linear deceleration at programmed rate. Should be used when a braking resistor is installed.
1	Standard	Standard ramp is controlled deceleration to prevent DC bus over-voltage trips, normally used. If a high motor voltage mode is selected, deceleration rates can be faster for a given inertia but motor temperatures will be higher.
2	Std boost	Standard ramp with motor voltage boost (20%) to increase motor losses and reduce the deceleration time.
3	Fast boost	Fast ramp with motor voltage boost (20%) to increase motor losses and reduce the deceleration time.

**⚠ If Pr 00.032 is set to 0 and Pr 00.030 to Standard(1) at the same time, DC bus regulation can increase the motor speed up to its rated value. See explanation of this phenomena in the user and technical guide ref.5512.**

<b>00.031 (06.001)</b>	<b>Stop Mode</b>		
Read-Write	↓	Coast(0), Ramp(1), Ramp dc I(2), dc I(3),Timed dc I(4), Disable(5)	→ Ramp(1)

This parameter defines how the motor is controlled when the run signal is removed from the drive.

Value	Mode	Description
0	Coast	Coast stop
1	Ramp	Ramp stop
2	Ramp dc I	Ramp stop + 1 second dc injection
3	dc I	DC Injection braking stop with detection of zero speed. The drive automatically senses low speed and adjusts the injection time to suit the application.
4	Timed dc I	Timed injection braking stop (injection braking time is 2 seconds).
5	Disable	Inverter disabled. Allows drive to be disabled then re-enabled immediately.

<b>00.032 (05.013)</b>	<b>Dynamic V To F Select</b>		
Read-Write	↓	0 or 1	→ 1

Set to 1 to enable Dynamic V to F mode.

Value	Description
0	Fixed linear voltage to frequency ratio (constant torque - standard load)
1	Voltage to frequency ratio dependent on load current. This gives a higher motor efficiency.

**⚠ If Pr 00.032 is set to 0 and Pr 00.030 to Standard(1) at the same time, DC regulation can increase the motor speed up to its rated value. See explanation of this phenomena in the user and technical guide ref.5512.**

<b>00.033 (06.009)</b>	<b>Catch A Spinning Motor</b>		
Read-Write	↓	Disable(0), Enable(1), Fwd Only(2), Rev Only(3)	→ Disable (0)

If this function is enabled, a test is carried out to measure the motor frequency.

If the drive is to be configured in fixed boost mode (Pr 00.041 = Fixed, Square or fixed tapered) with catch a spinning motor software enabled, an autotune (see Pr 00.038) must be carried out to measure the motor's stator resistance beforehand. If a stator resistance is not measured, the drive may trip on 'Over Volts' or 'OI ac' while trying to catch a spinning motor.

Value	Mode	Function
0	Disable	Disabled
1	Enable	Detect all frequencies
2	Fwd Only	Detect positive frequencies only
3	Rev Only	Detect negative frequencies only

<b>00.034 (01.010)</b>	<b>Bipolar reference enable</b>		
Read-Write	↓	0 or 1	→ 0

This parameter determines whether the reference is uni-polar or bi-polar. Set to 1 for bipolar reference.

<b>00.035 (08.081)</b>	<b>DIO1 Input Control</b>		
Read-Write	↓	0 to 26	→ 0

This parameter determines the function of DIO1 when it is set as a digital input.

Value	Description
0	User defined by Digital IO1 Source/Destination A (Pr 08.021)
1	Multi preset ref selection 1 (Pr 01.045)
2	Multi preset ref selection 2 (Pr 01.046)
3	Multi preset ref selection 3 (Pr 01.047)
4	External stop command (Pr 06.039)
5	Acc time selection 1 (Pr 02.032)
6	Acc time selection 2 (Pr 02.033)
7	Acc time selection 3 (Pr 02.034)
8	Speed control and torque control switcher (Pr 04.011)
9	External fault N.C. contact input (Pr 10.032)
10	External reset (Pr 10.033)
11	External jog fwd (Pr 06.031)
12	External jog rev (Pr 06.037)
13	Drive enable (Pr 06.015)
14	Ramp hold (Pr 02.003)
15	RUN FWD (Pr 06.030)
16	RUN REV (Pr 06.032)
17	3-line run control (Latching) (Pr 06.040)
18	Forward limit switch (Pr 06.035)
19	Reverse limit switch (Pr 06.036)
20	Main ref channel selection 3 (Pr 01.043)
21	Main ref channel selection 2 (Pr 01.042)
22	Main ref channel selection 1 (Pr 01.041)
23	PID1 Enable (Pr 14.008)
24	Motor 1/2 switcher (Pr 11.045)
25	Motorised pot UP (Pr 09.026)
26	Motorised pot DOWN (Pr 09.027)

<b>00.036</b>	<b>Not used</b>
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<b>00.037 (05.018)</b>	<b>Maximum Switching Frequency</b>		
Read-Write	↓	2(2); 3(3); 4(4); 6(5); 8(6); 12(7); 16(8) kHz	→ 3 kHz (3)

This parameter defines the maximum switching frequency that can be used by the drive.

<b>00.038</b> <b>(05.012)</b>	<b>Autotune</b>
Read-Write ↓	0 to 2 → 0

Defines the auto-tune test to be performed.

Value	Description
0	Autotune disabled.
1	A stationary autotune can be used when the motor is loaded and it is not possible to remove the load from the motor shaft. It measures the stator resistance (required for control mode and for Catch a spinning motor function) and the transient inductance (to improve performance). To perform a stationary autotune, set Pr <b>00.038</b> to 1.
2	A rotating autotune should only be used if the motor is unloaded. A rotating autotune first performs a stationary autotune, as above, then a rotating test is performed in which the motor is accelerated with currently selected ramps up to a frequency of Rated Frequency (Pr <b>00.039</b> ) x 2/3, and the frequency is maintained at that level for 4 seconds. In addition to stationary measurements, this autotune measures motor rated voltage and stator inductance (required for basic control). To perform a Rotating autotune, set Pr <b>00.038</b> to 2.

**NOTE**

- A rotating autotune should be used whenever possible (with unloaded motor) so the measured value of power factor of the motor is used by the drive.
- A stationary autotune is already performed once at factory.
- A stationary autotune occurs after each procedure to restore drive default settings.



**A rotating autotune will cause the motor to accelerate up to 2/3 base speed in the direction selected regardless of the reference provided. Once complete the motor will coast to a stop. The enable signal must be removed before the drive can be made to run at the required reference. The drive can be stopped at any time by removing the run signal or removing the drive enable or opening STO terminals.**

<b>00.039</b> <b>(05.006)</b>	<b>Motor Rated Frequency</b>
Read-Write ↓	0.00 to 150.00 Hz → 50.00 Hz

This parameter is set to the value from the name plate of the motor. Defines the voltage to frequency ratio applied to the motor.

<b>00.040</b> <b>(05.011)</b>	<b>Number Of Motor Poles</b>
Read-Write ↓	0 to 16 → 0

This parameter is set to the number of pole pairs of the motor. When it is set to 0, the number of motor poles is automatically calculated from the settings of Pr **00.007** and Pr **00.039**.

**NOTE**

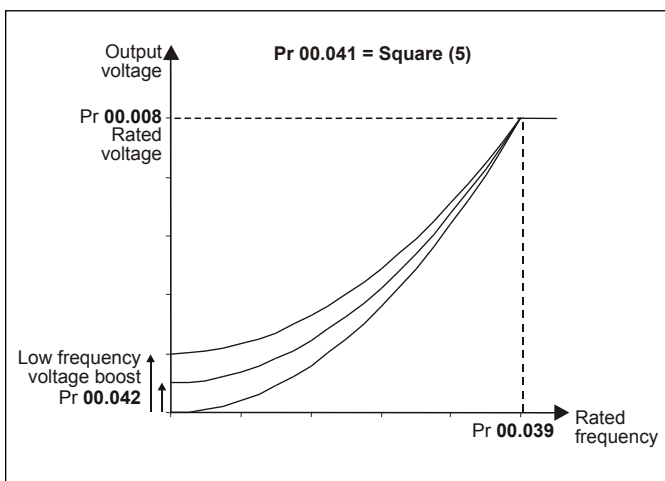
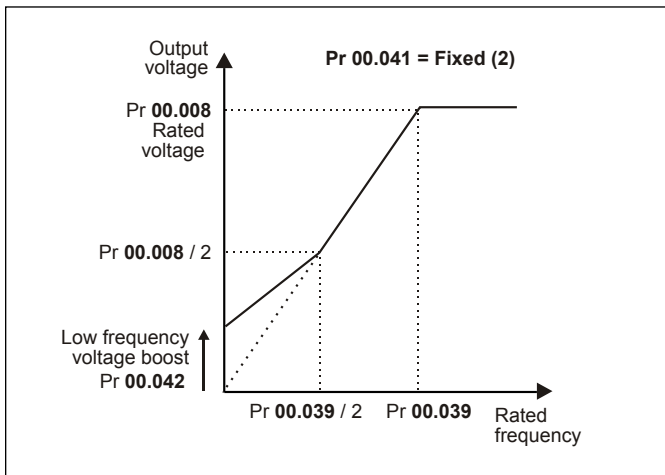
When viewed with a keypad, the value of 0 is displayed as Automatic and any non 0 value is displayed as twice the parameter value, representing number of motor poles rather than pole pairs.

<b>00.041</b> <b>(05.014)</b>	<b>Control Mode</b>
Read-Write ↑	Ur S(0), Ur(1), Fixed(2), Ur Auto(3), Ur I(4), Square(5), Fixed tapered(6) → Ur I(4)

This parameter defines the drive output mode, which can either be a voltage mode or a current mode as given below.

Value	Mode	Description
0	Ur S	Stator resistance and voltage offset measured at each start. This method controls the flux level correctly in the motor in the steady state.
1	Ur	No measurements
2	Fixed	Fixed boost mode, see the curve below.
3	Ur Auto	Stator resistance and voltage offset measured at first drive enable
4	Ur I	Stator resistance and voltage offset measured at each power-up
5	Square	Square law characteristic, see the curve hereafter.
6	Fixed Tapered	Fixed boost with zero slip at zero reference

For more details, refer to the Parameter reference guide ([www.commanderID300.info](http://www.commanderID300.info)).



**NOTE**

The drive default setting is Ur I mode which means that the drive will carry out an autotune every time it is powered-up and



enabled. If the load is not going to be stationary when the drive is powered-up and enabled, then one of the other modes should be selected. Not selecting another mode could result in poor motor performance or 'OI ac', 'Motor Too Hot' or 'Over Volts' trips.

<b>00.042</b> <b>(05.015)</b>	<b>Low Frequency Voltage Boost</b>
Read-Write ↓	0.0 to 25.0 % → 3.0 %

This parameter determines the boost level when Pr **00.041** is set to Fixed, Square or Fixed Tapered modes.

<b>00.043</b> <b>(11.025)</b>	<b>Serial Baud Rate</b>
Read-Write ↓	600(1), 1200(2), 2400(3), 4800(4), 9600(5), 19200(6), 38400(7), 57600(8), 76800(9), 115200(10) bauds → 115200 (10) bauds

This parameter defines the baud rate used by the serial comms interface. Changing the parameter does not immediately change the serial communications settings. See Reset Serial Communications (Pr **00.045**) for more details.

**NOTE**

If drive baud rate value is changed from its default value (Pr **00.043** at 115200 bauds), Connect software will work correctly but slower. However, if ID-SIZEx-Keypad option is used at the same time, it will no longer be able to communicate with the drive.

<b>00.044</b> <b>(11.023)</b>	<b>Serial Address</b>
Read-Write ↓	1 to 247 → 1

This parameter is used to define the unique address for the drive for the serial interface. The drive is always a slave. Address 0 is used to globally address all slaves, and so this address should not be set in this parameter.

Changing the parameter does not immediately change the serial communications settings. See Reset Serial Communications (Pr **00.045**) for more details.

<b>00.045</b> <b>(11.020)</b>	<b>Reset Serial Communications</b>
Read-Write ↓	0 or 1 → 0

Set to 1 to update communications set-up.

**NOTE**

Pr **00.045** is automatically cleared to zero after the communications system is updated.

<b>00.046</b> <b>(12.042)</b>	<b>Upper Current Threshold</b>
Read-Write ↓	0 to 200 % → 50 %

<b>00.047</b> <b>(12.043)</b>	<b>Lower Current Threshold</b>
Read-Write ↓	0 to 200 % → 10 %

The Current Magnitude (Pr **00.088**) is compared to an upper and lower threshold by a comparator with hysteresis to give torque present and drive output open circuit detection functions respectively.

Lower Current Threshold Pr **00.047** and Upper Current Threshold Pr **00.046** are given as a percentage of Motor Rated Current Pr **00.006**.

Upper Current Threshold should be set to the current level that indicates that there is magnetising current and sufficient torque producing current in the motor to deliver the required amount of torque when the brake is released. The output of the comparator remains active after this level has been reached unless the current subsequently falls below Lower Current Threshold which should be set to the required level to detect the condition where the motor has been disconnected from the drive.

<b>00.048</b> <b>(12.044)</b>	<b>Brake Release Frequency</b>
Read-Write ↓	0.00 to 20.00 Hz → 1.00 Hz

<b>00.049</b> <b>(12.045)</b>	<b>Brake Apply Frequency</b>
Read-Write ↓	0.00 to 20.00 Hz → 2.00 Hz

The frequency comparator is used on starting, to detect when the motor frequency has reached a level where the motor can produce the required amount of torque to ensure that the motor rotates in the demanded direction when the brake is released.

Brake Release Frequency Pr **00.048** should be set to a level slightly above the motor slip frequency that is likely to occur under the highest expected load that is applied to the motor when the brake is released.

The brake apply frequency threshold is used to ensure that the brake is applied before the motor frequency reaches zero and to prevent the motor rotating (in the reverse direction due to an overhauling load for example) during the brake apply time. If the frequency falls below Brake Apply Frequency Pr **00.049**, but the motor is not required to stop (i.e. reversing direction without stopping) then Reference On Pr **00.091** will be one, and so the brake is not applied. This prevents the brake from activating and de-activating as the motor passes through zero speed. If the frequency falls below Brake Apply Frequency Pr **00.049** and Reference On Pr **00.091** = 0 then the brake will be applied.

<b>00.050</b> <b>(12.046)</b>	<b>Brake Release Delay</b>
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<b>00.051</b> <b>(12.047)</b>	<b>Post-brake Release Delay</b>
Read-Write ↓	0.0 to 25.0 s → 0.1 s

When both Current detection and Frequency detection conditions are met, the ramp is held and the brake released after the Brake Release Delay Pr **00.050**.

When the brake is released, the ramp is held for a further period set by Post-brake Release Delay Pr **00.051** after which the ramp is released.

<b>00.052</b> <b>(12.040)</b>	<b>Brake Release</b>
Read-Only ↓	0 or 1 → -

When Pr **00.052** = 0, the brake should be applied.

When Pr **00.052** = 1, the brake should be released.

Normally this should be routed to a digital output to control the mechanical brake.

This is already pre-configured when preset configurations "AV with brake" and "3PS/1Ana brake" are selected (DIO1 is the brake control output).

If Brake Controller Enable Pr **00.055** = 0, then the brake controller is disabled.

<b>00.053</b> <b>(12.050)</b>	<b>Initial Direction</b>
Read-Write ↓	Ref(0), Forward(1), Reverse(2) → Ref(0)

This parameter defines the initial direction of the brake.

Value	String	Description
0	Ref	The brake controller operates as standard and the user reference is used to define the direction of operation.
1	Forward	Pr <b>01.057</b> is used to force the frequency reference to the positive modulus of the selected user reference until the end of the post-brake release period whatever the direction of the user reference. This can be used by example to ensure that in a vertical application the motor will definitely hold the load at the point when the brake is released
2	Reverse	Pr <b>01.057</b> is used to force the frequency reference to minus the modulus of the user selected reference until the end of the post-brake release period to ensure that the output frequency is negative during this period.

**NOTE**

It should be noted that Pr **00.053** has no effect if Brake Apply Through Zero Threshold Pr **00.054** is non-zero, and the user reference direction is always used as the initial direction, to prevent a condition where the brake would release then apply repeatedly.

<b>00.054</b> <b>(12.051)</b>	<b>Brake Apply Through Zero Threshold</b>
Read-Write ↓	0.00 to 20.00 Hz → 1.00 Hz

In Open-loop mode, the torque produced may reduce as the frequency passes through zero. To prevent the load from falling during this period in a vertical application, it is possible to apply the brake momentarily to hold the load.

If Brake Apply Through Zero Threshold Pr **00.054** = 0, then the brake is not applied when the frequency passes through zero unless Reference On Pr **00.091** = 0.

If Brake Apply Through Zero Threshold Pr **00.054** is non-zero, then the brake is always applied when the modulus of frequency is less than Brake Apply Through Zero Threshold Pr **00.054**, even if Reference On Pr **00.091** = 1. This ensures that the brake is applied and then released as the frequency passes through zero. Pr **00.054** should be set to a value that is lower than both Brake Release Frequency Pr **00.048** and Brake Apply Frequency Pr **00.049** so that it does not interfere with the control of the brake when starting and stopping.

<b>00.055</b> <b>(12.041)</b>	<b>Brake Controller Enable</b>
Read-Write ↓	Disable(0), Relay(1), Digital IO(2), User(3) → Disable(0)

This parameter defines the brake control as follows.

Value	Mode	Description
0	Disable	The brake controller is disabled.
1	Relay	The brake controller is enabled with I/O set up to control the brake via relay output. 'Drive OK' is re-routed to the digital I/O (DIO1).
2	Digital IO	The brake controller is enabled with I/O set up to control the brake via digital I/O (DIO1). 'Drive OK' is routed to the relay output.
3	User	The brake controller is enabled, but no parameters are set up to select the brake output.

The parameters which are used by the brake controller to operate the drive are reset to 0 on the transition of Brake Controller Enable Pr **00.055** from 1 to 0.

**NOTE**

- Action will only occur if the drive is inactive. Otherwise, the parameter will return to its pre-altered value on exit from edit mode.
- All parameters are saved if this parameter changes.
- When "AV with brake" or "3PS/1Ana brake" preset configuration is selected, Pr **00.055** is automatically set to Digital IO (2).



**The control terminal relay can be selected as an output to release the brake (Pr 00.055 = Relay(1)). If a drive is set up in this manner and a drive replacement takes place or after restoring parameter defaults, prior to programming the drive on initial power up, the brake may be released.**

<b>00.056</b> <b>(10.020)</b>	<b>Trip 0</b>
<b>00.057</b> <b>(10.021)</b>	<b>Trip 1</b>
<b>00.058</b> <b>(10.022)</b>	<b>Trip 2</b>
Read-Only ↓	0 to 255 → -

These parameters show the current or last trip (trip 0), the 2nd from last trip (trip 1) and the 3rd from last trip (trip 2) to have occurred. For relevant trip description, refer to the user and technical guide ref.5512.

<b>00.059</b> <b>(11.047)</b>	<b>Onboard User Program (OUP) Enable</b>
Read-Write ↓	Stop(0) or Run(1) → Run(1)

This parameter enables the onboard user program.

Onboard user programming provides a background task that loops continuously and a timed task that is executed each time at a defined rate.

For more details about Onboard PLC , refer to the user and technical guide ref.5512.

<b>00.060 (11.048)</b>	<b>Onboard User Program (OUP) Status</b>
Read-Only ↓	-2147483648 or 2147483647 → -

This parameter indicates the status of the user program in the drive.

For more details about Onboard PLC , refer to the user and technical guide ref.5512.

<b>00.061 (11.030)</b>	<b>User Security Code</b>
Read-Write ↓	0 to 9999 → 0

This parameter defines the user security code of the drive. This parameter should be set to a value other than 0 to prevent unauthorized access to the drive. When a value has been set, it cannot be seen to prevent the security code from being read (a value of 0 is displayed). If a value has been set, the security code must be entered before any parameter can be adjusted via the keypad.

<b>00.062 (11.019)</b>	<b>Status Mode Parameter 2</b>
Read-Write ↓	0.000 to 30.999 → 4.020

<b>00.063 (11.018)</b>	<b>Status Mode Parameter 1</b>
Read-Write ↓	0.000 to 30.999 → 2.001

These parameters define which parameters are displayed in Status mode. The values can be alternated by pressing the Escape key, if the drive is running.

**NOTE**

By default, Pr **00.062** is set to parameter Pr **04.020** which shows the level of torque producing current as a percentage of rated torque producing current for the motor, and Pr **00.063** is set to parameter Pr **02.001** which displays the output of the ramp system.

<b>00.064 (11.021)</b>	<b>Customer Defined Scaling</b>
Read-Write ↓	0.000 to 10.000 → 1.000

This parameter defines the scaling applied to Pr **00.063** Status Mode Parameter 1. The scaling is only applied in the Status mode.

<b>00.065 to 00.068</b>	<b>Not used</b>
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<b>00.069 (05.040)</b>	<b>Spin Start Boost</b>
Read-Write ↓	0.0 to 10.0 → 1.0

This parameter is used by the algorithm that detects the frequency of a spinning motor when the drive is enabled and Catch A Spinning Motor (Pr **00.033**) ≠ Disable (≥1). For smaller motors the default value of 1.0 is suitable, but for larger motors it may need to be increased.

**CAUTION**

If Spin Start Boost is too small the drive will detect zero speed whatever the frequency of the motor, and if it is too large the motor may accelerate away from standstill when the drive is enabled.

<b>00.070 to 00.075</b>	<b>Not used</b>
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<b>00.076 (10.037)</b>	<b>Action On Trip Detection</b>
Read-Write ↓	0 to 31 (Display: 00000 - 11111) → 0

The bits 0 to 4 can be set to 1 to enable some functions as defined below:

Bits	Function
0	Stop on defined non-important trips
1	Disable braking resistor overload detection
2	Disable phase loss stop
3	Disable braking resistor temperature monitoring
4	Disable parameter freeze on trip

<b>00.077 (11.032)</b>	<b>Maximum Current Rating</b>
Read-Only ↓	0.00 to 9999.99 A → -

This parameter displays the maximum current rating of the drive.

<b>00.078 (11.029)</b>	<b>Software version</b>
Read-Only ↓	0 to 999999 → -

This parameter displays the software version in the drive as decimal number (wwxyyy).

<b>00.079</b>	<b>Not used</b>
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<b>00.080 (10.002)</b>	<b>Drive Active</b>
Read-Only ↓	0 or 1 → -

If the drive inverter is active, Pr **00.080** is set to one, otherwise it is zero.

<b>00.081 (01.001)</b>	<b>Reference Selected</b>
Read-Only ↓	± Pr <b>00.002</b> or Pr <b>00.001</b> to Pr <b>00.002</b> (Hz) → -

This is the basic reference selected from the available sources.

<b>00.082 (01.003)</b>	<b>Pre-ramp Reference</b>
Read-Only ↓	± Pr <b>00.002</b> or Pr <b>00.001</b> to Pr <b>00.002</b> (Hz) → -

This is the final output from the reference system that is fed into the ramp system.

<b>00.083 (03.001)</b>	<b>Final demand Reference</b>
Read-Only ↓	± Pr <b>00.002</b> or Pr <b>00.001</b> to Pr <b>00.002</b> (Hz) → -

It shows the fundamental drive output frequency.

<b>00.084 (05.005)</b>	<b>D.C. Bus Voltage</b>
Read-Only ↓	0 to 415 V or 0 to 900 V → -

It shows the Voltage across the internal DC bus of the drive.

<b>00.085 (05.001)</b>	<b>Output Frequency</b>
Read-Only ↓	± 150.00 (Hz) → -

This is the sum of the Post Ramp Reference and the motor slip compensation frequency.

<b>00.086 (05.002)</b>	<b>Output Voltage</b>
Read-Only ↓	0 to 325 V or 0 to 650 V → -

This is the rms line to line voltage at the AC terminals of the drive.

<b>00.087 (05.004)</b>	<b>Motor Rpm</b>
Read-Only ↓	± 9000 rpm → -

Motor Rpm = 60 x Frequency / Pole pairs

where:

- Pole pairs = the value of Number Of Motor Poles (Pr 00.040) (i.e. 3 for a 6 pole motor)
- The frequency used to derive the Motor Rpm is the Final Demand Reference (Pr 00.083).

<b>00.088 (04.001)</b>	<b>Current Magnitude</b>
Read-Only ↓	0 to Drive Maximum Current (A) → -

This is the instantaneous drive output current scaled so that it represents the r.m.s. phase current in Amps under steady state conditions.

<b>00.089 (04.002)</b>	<b>Torque Producing Current</b>
Read-Only ↓	± Drive Maximum Current (A) → -

This is the instantaneous level of torque producing current scaled so that it represents the r.m.s. level of torque producing current under steady state conditions.

<b>00.090 (08.020)</b>	<b>Digital I/O Read Word</b>
Read-Only ↓	0 to 1023 → -

It reflects the state of digital inputs/outputs DIO1, DI1 to DI4 and the relay.

Each bit matches the value of the state parameter for the respective digital input or output so the bit value for digital inputs will be the state of the actual input before any inversion selections are applied. The bit value for digital outputs will include the state inversion if selected in the invert parameter for the output.

Pr 00.090 Bits	Input/Output name
0	DIO1
1	DI2
2	DI3
3	DI4
4 to 8	Reserved
9	Relay

<b>00.091 (01.011)</b>	<b>Reference On</b>
Read-Only ↓	Off or On → -

The Reference On, which is controlled by the drive sequencer, indicates that the reference from the reference system is active.

<b>00.092 (01.012)</b>	<b>Reverse select</b>
Read-Only ↓	Off or On → -

The Reverse Select, which is controlled by the drive sequencer, is used to invert Pr 00.081 Reference Selected.

<b>00.093</b>	<b>Not used</b>
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<b>00.094 (07.001)</b>	<b>Analog/Digital Input 1</b>
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<b>00.095 (07.002)</b>	<b>Analog/Digital Input 2</b>
Read-Only ↓	± 100.00% → -

These parameters display the level of the analog signal present at analog input 1 (terminal 2) and analog input 2 (terminal 4).



**• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open)
- Power up the drive
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz).
- DIO1 will select the frequency reference as follows:

DIO1	Selected reference
Open	Voltage frequency reference on ADI1 (0-10V)
Closed	Current frequency reference on ADI2 (4-20mA)

- Close the Enable terminal 8 or the STO terminals 31 & 34
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Adjust the frequency reference by tuning the potentiometer until the correct speed reference is reached.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

**• Parameter explanation**

<b>00.011 (07.007)</b>	<b>ADI1 Mode</b>
Read-Write ↓	See table below → Voltage
<b>00.012 (07.011)</b>	<b>ADI2 Mode</b>
Read-Write ↓	See table below → 4-20 mA

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

**NOTE**

If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 function is forced to be a thermistor input.

Thus the setting of Pr **00.012** is not active. To be able to use Pr **00.012**, Pr **00.014** should be set to 'An/Dig input'.

<b>00.013</b>	<b>Not used</b>
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<b>00.014 (07.045)</b>	<b>ADI2 Thermistor Mode</b>
Read-Write ↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3) → An/Dig Input(0)

This parameter defines ADI2 mode which can be an analog or digital input, or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide ([www.commanderID300.info](http://www.commanderID300.info)).

Value	Mode	Function
0	An/Dig Input	Input mode defined by Pr <b>00.012</b>
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

<b>00.015 (07.047)</b>	<b>Thermistor Feedback</b>
Read-Only ↓	0 to 4000 Ω → -

This parameter shows the measured resistance of the thermistor connected to ADI2 (if thermistor connected and set correctly, see Pr **00.014** for more details).

<b>00.016 (07.008)</b>	<b>ADI1 Scaling</b>
<b>00.017 (07.012)</b>	<b>ADI2 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

These parameters are used, if necessary, to scale the analog inputs. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr **00.016** and **00.017** have no effect if ADI1 Mode (**00.011**) or ADI2 Mode (**00.012**) = Digital.

<b>00.018</b>	<b>Not used</b>
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<b>00.019 (07.009)</b>	<b>ADI1 Invert</b>
<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input signal.

<b>00.021</b> <b>(07.030)</b>	<b>ADI1 Offset</b>
<b>00.022</b> <b>(07.031)</b>	<b>ADI2 Offset</b>
Read-Write ↓	± 100.00 % → 0.00 %

These parameters are used, if necessary, to add an offset to the Analog inputs 1 and 2.

Pr **00.020** and **00.021** have no effect if ADI1 Mode (**00.011**) or ADI2 Mode (**00.012**) = Digital.

<b>00.023</b>	<b>Not used</b>
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<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

Pr **00.024** should remain at **1.000** if Pr **00.025** Output Control is set to **16** (LED management).

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025** = **0 to 15**

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025** = **16**

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter function by setting Pr **00.027**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → • ID300: 06.038 • ID302: 0.000

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

**00.029**  
**(07.003) ADIO3 Output State**

Read-Only	↓	± 100.00 %	→	-
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ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required.  
For more information about LED management, refer to the user and technical guide ref.5512.

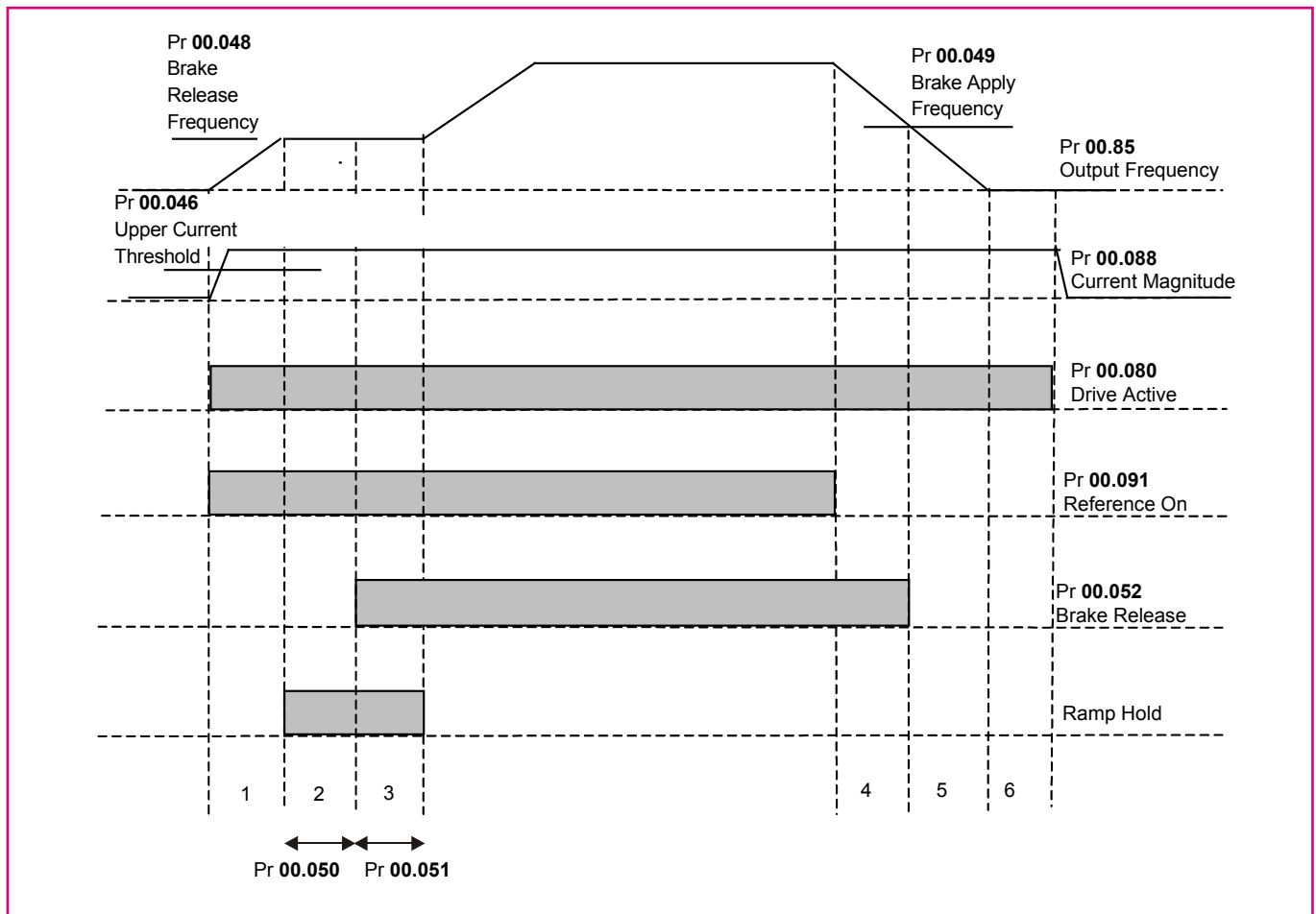




• Brake control parameters

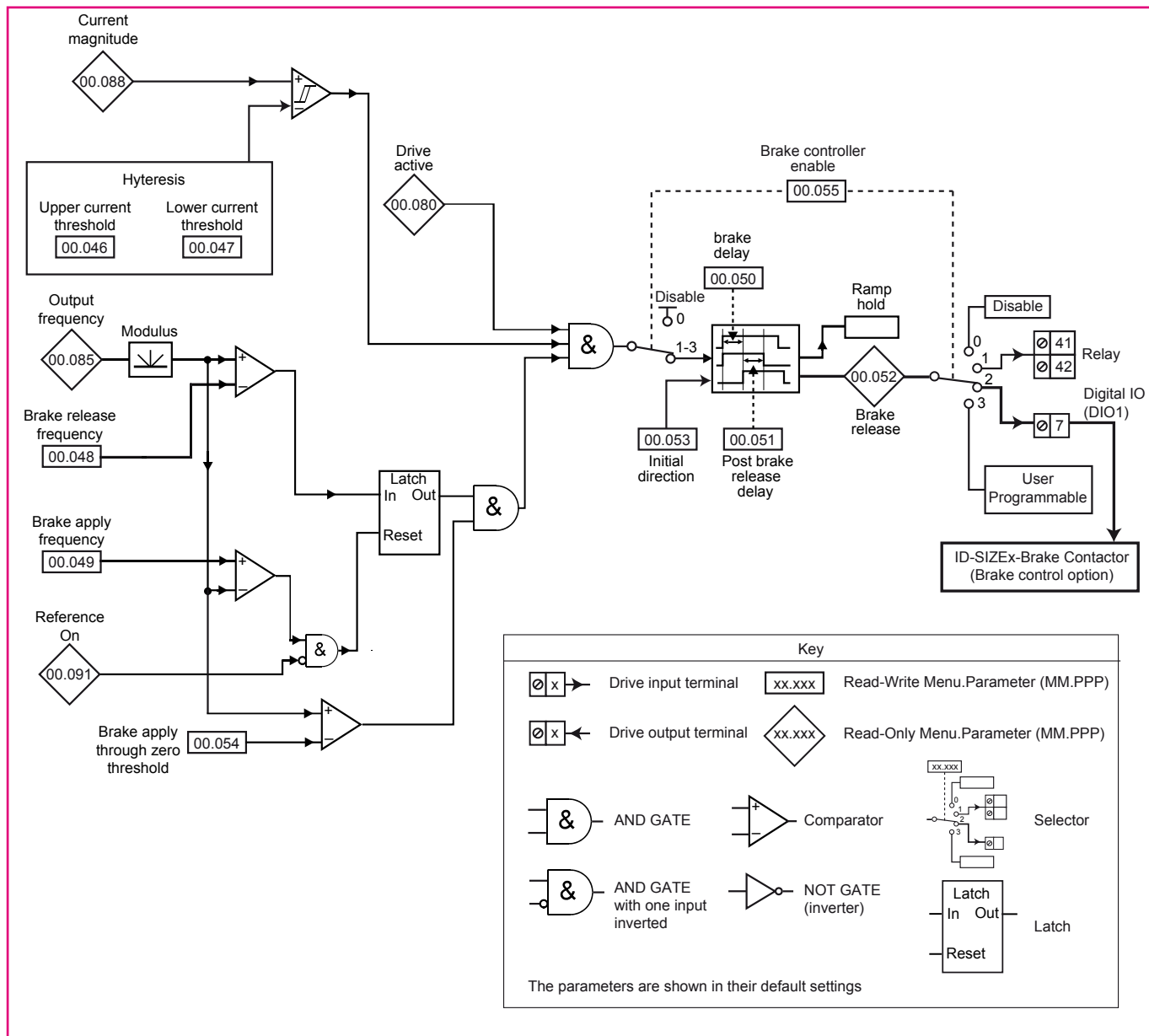
Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.046	12.042	Upper Current Threshold	0 to 200 %	50 %
00.047	12.043	Lower Current Threshold	0 to 200 %	10 %
00.048	12.044	Brake Release Frequency	0.00 to 20.00 Hz	1.00 Hz
00.049	12.045	Brake Apply Frequency	0.00 to 20.00 Hz	2.00 Hz
00.050	12.046	Brake Release Delay	0.0 to 25.0 s	1.0 s
00.051	12.047	Post-brake Release Delay	0.0 to 25.0 s	1.0 s
00.052	12.040	Brake release	0 or 1	-
00.053	12.050	Initial Direction	Ref(0), Forward(1), Reverse(2)	Ref(0)
00.054	12.051	Brake Apply Through Zero Threshold	0.00 to 20.00 Hz	1.00 Hz
00.055	12.041	Brake Controller Enable	Disable(0), Relay(1), Digital IO(2), User(3)	Digital IO(2)

• Brake control operation



1. Wait for upper current threshold and brake release frequency
2. Pre-brake release delay
3. Post-brake release delay
4. Wait for brake apply frequency
5. Wait for zero frequency
6. 1s delay as phase 2 of stopping sequence (Stop Mode Pr 00.031 = 1, 2 or 3)

• Dedicated brake diagram



AV with brake (12)

- **The brake control functions are provided to allow well coordinated operation of the motor brake with the drive. While both hardware and software are designed to high standards of quality and robustness, they are not intended for use as safety functions, i.e. where a fault or failure would result in a risk of injury. In any application where the incorrect operation of the brake release mechanism could result in injury, independent protection devices of proven integrity must also be incorporated.**
- **The control terminal relay can be selected as an output to release the brake. If a drive is set up in this manner and a drive replacement takes place or after restoring parameter defaults, prior to programming the drive on initial power up, the brake may be released.**

For brake control parameter explanations, please refer to Pr 00.046 to 00.055, page 17.

**• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open).
- Power up the drive.
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz)
- Adjust the brake controller by setting Pr **00.046** to Pr **00.055**. See page 17 for parameter explanation.
- Close the Enable terminal 8 or the STO terminals 31 & 34.
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Adjust the frequency reference by tuning the potentiometer until the correct speed reference is reached.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

**NOTE**

- Brake control output connection on DIO1 is already made at factory.
  - If you do not need brake control, the function can be disabled by setting Pr **00.055** to "Disable".
- Parameter explanation**

<b>00.011 (07.007)</b>	<b>ADI1 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.012 and 00.013</b>	<b>Not used</b>
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<b>00.014 (07.045)</b>	<b>ADI2 Thermistor Mode</b>
Read-Write ↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3) → Digital Input(0)

This parameter defines ADI2 mode which can be a digital input or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide ([www.commanderID300.info](http://www.commanderID300.info)).

Value	Mode	Function
0	An/Dig Input	Digital input
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

<b>00.015 (07.047)</b>	<b>Thermistor Feedback</b>
Read-Only ↓	0 to 4000 Ω → -

This parameter shows the measured resistance of the thermistor connected to ADI2 (if the thermistor connected and set correctly, see Pr **00.014** for more details).

<b>00.016 (07.008)</b>	<b>ADI1 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

These parameters are used, if necessary, to scale the analog inputs. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr **00.016** has no effect if ADI1 Mode (**00.011**) = Digital.

<b>00.017 and 00.018</b>	<b>Not used</b>
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<b>00.019 (07.009)</b>	<b>ADI1 Invert</b>
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<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
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<b>00.021 (08.011)</b>	<b>DIO1 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input or output signal.

<b>00.022 (08.001)</b>	<b>DIO1 Output State</b>
Read-Only ↓	0 or 1 → -

Displays the state for DIO1 which is pre-configured as a digital output (terminal 7).

<b>00.023</b> <b>(07.014)</b>	<b>ADI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → 0.000

Defines the output parameter (destination) for ADI2 which is pre-configured as a digital input (terminal 4).

As an example, find below parameters that could be set in Pr **00.023** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, no destination parameter is assigned.

If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 function is forced to be a thermistor input. Thus the setting of Pr **00.023** is not active. To be able to use Pr **00.023**, Pr **00.014** should be set to 'An/Dig input'.

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

Pr **00.024** should remain at 1.000 if Pr **00.025** Output Control is set to 16 (LED management).

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025** = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025** = 16

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → • ID300: 06.038 • ID302: 0.000

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary, it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

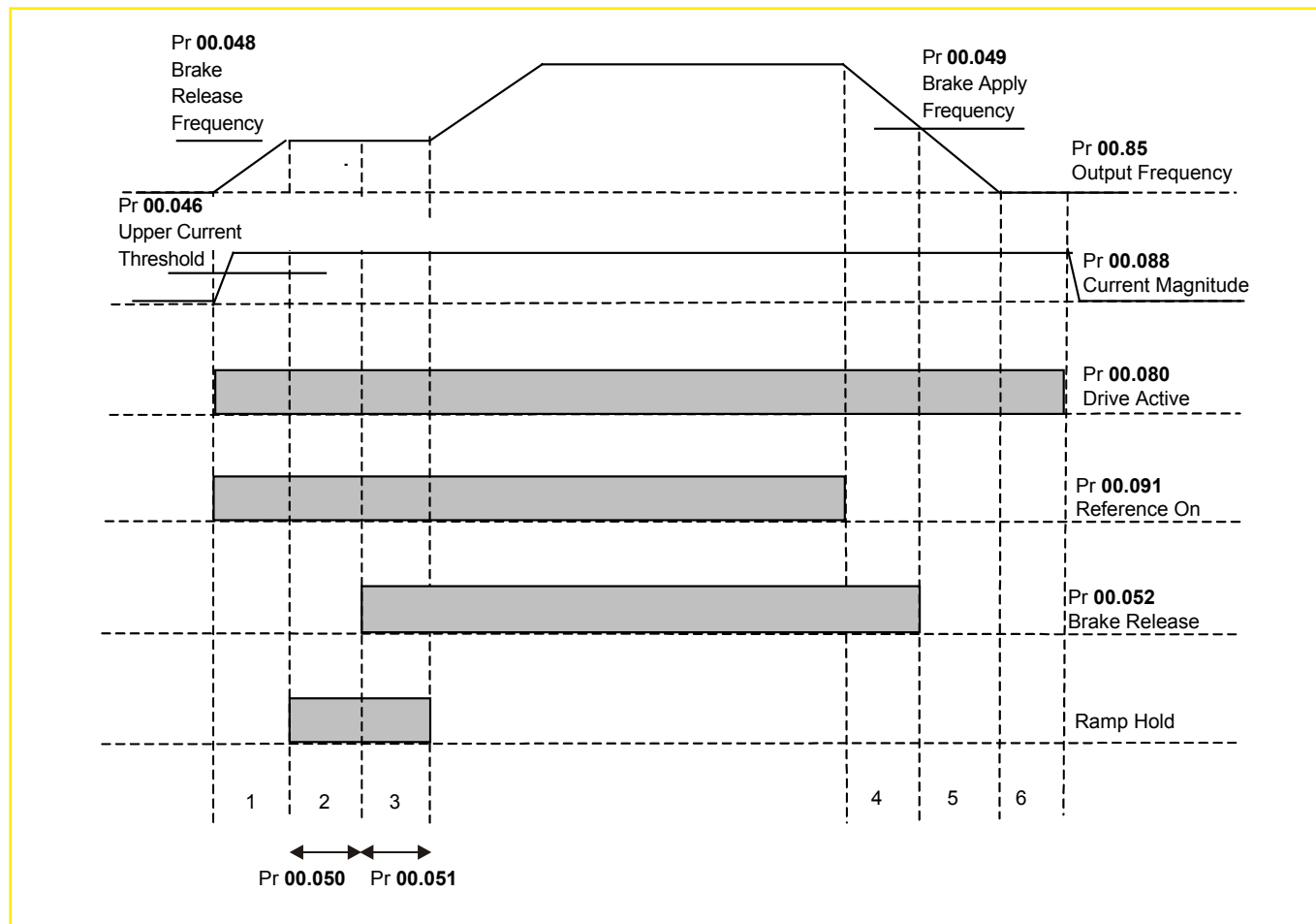
By default, Yellow LED is not active. See Pr **00.027** if required.  
For more information about LED management, refer to the user and technical guide ref.5512.



• Dedicated brake parameters

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.046	12.042	Upper Current Threshold	0 to 200 %	50 %
00.047	12.043	Lower Current Threshold	0 to 200 %	10 %
00.048	12.044	Brake Release Frequency	0.00 to 20.00 Hz	1.00 Hz
00.049	12.045	Brake Apply Frequency	0.00 to 20.00 Hz	2.00 Hz
00.050	12.046	Brake Release Delay	0.0 to 25.0 s	1.0 s
00.051	12.047	Post-brake Release Delay	0.0 to 25.0 s	1.0 s
00.052	12.040	Brake release	0 or 1	-
00.053	12.050	Initial Direction	Ref(0), Forward(1), Reverse(2)	Ref(0)
00.054	12.051	Brake Apply Through Zero Threshold	0.00 to 20.00 Hz	1.00 Hz
00.055	12.041	Brake Controller Enable	Disable(0), Relay(1), Digital IO(2), User(3)	Digital IO(2)

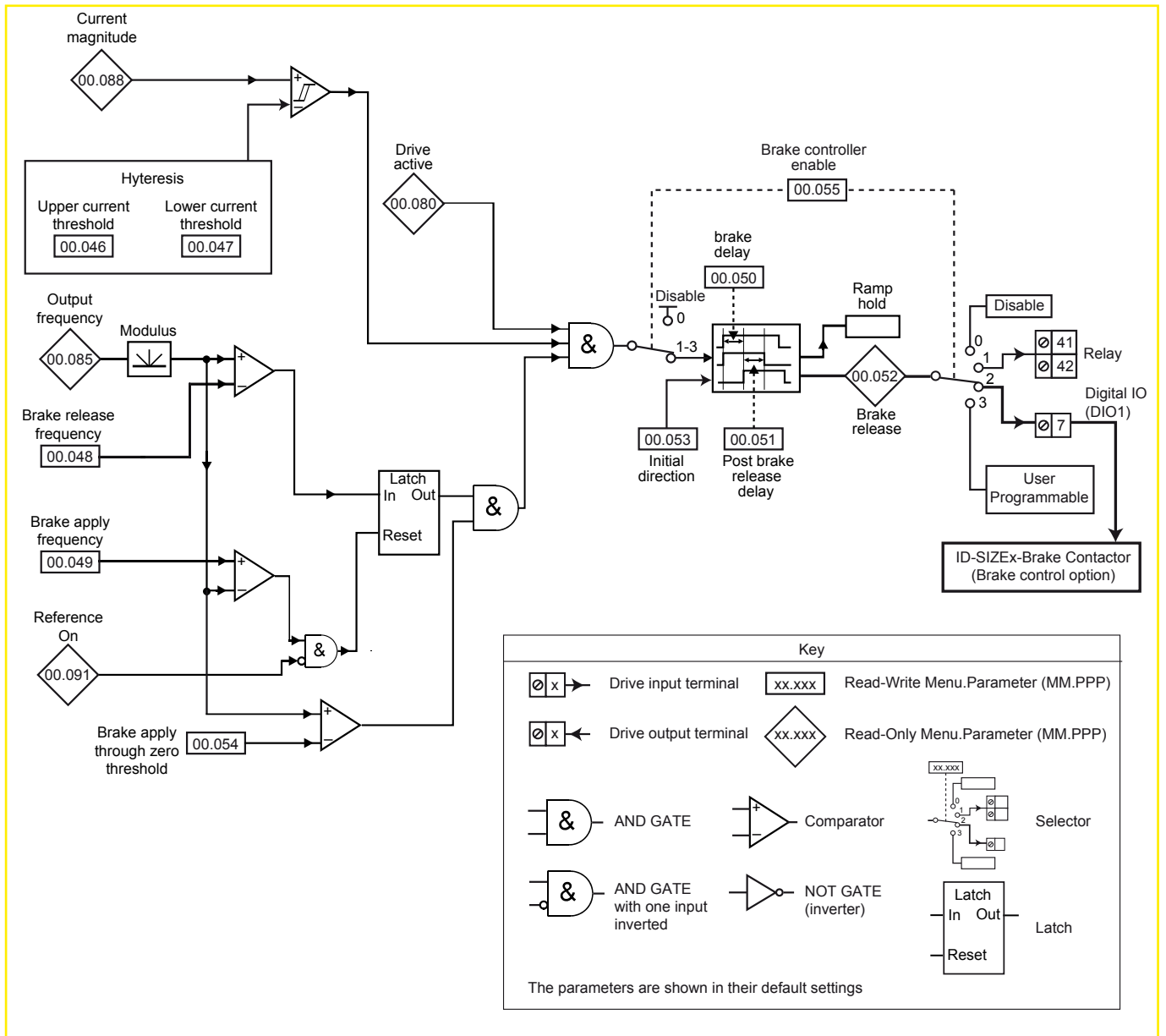
• Brake control operation



1. Wait for upper current threshold and brake release frequency
2. Pre-brake release delay
3. Post-brake release delay
4. Wait for brake apply frequency
5. Wait for zero frequency
6. 1s delay as phase 2 of stopping sequence (Stop Mode Pr 00.031 = 1, 2 or 3)



• Brake Control Logic diagram



**⚠** • The brake control functions are provided to allow well co-ordinated operation of the motor brake with the drive. While both hardware and software are designed to high standards of quality and robustness, they are not intended for use as safety functions, i.e. where a fault or failure would result in a risk of injury. In any application where the incorrect operation of the brake release mechanism could result in injury, independent protection devices of proven integrity must also be incorporated.

• The control terminal relay can be selected as an output to release the brake. If a drive is set up in this manner and a drive replacement takes place or after restoring parameter defaults, prior to programming the drive on initial power up, the brake may be released.

For brake control parameter explanations, please refer to Pr 00.046 to 00.055, page 17.

**• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminals 31 and 34 are open)
- Power up the drive
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz)
- Set the correct preset references 2, 3 and 4 in Pr **00.012**, Pr **00.013** and Pr **00.014**.
- Adjust the brake controller by setting Pr **00.046** to Pr **00.055**. See page 17 for parameter explanation.
- The reference selection will be as follows:

ADI2	DI2	Selected reference
Open	Open	Frequency reference on ADI1 (0-10V)
Open	Closed	Preset reference 2
Closed	Open	Preset reference 3
Closed	Closed	Preset reference 4

- Close the STO terminals 31 & 34 .
- Select the required frequency reference by opening/closing ADI2 and DI2 terminals.
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

**NOTE**

- Brake control output connection on DIO1 is already made at factory. If you do not need brake control, the function can be disabled by setting Pr **00.055** to "Disable".

**• Parameter explanation**

<b>00.011 (07.007)</b>	<b>ADI1 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	

Value	Mode	Function
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.012 (01.022)</b>	<b>Preset Reference 2</b>
<b>00.013 (01.023)</b>	<b>Preset Reference 3</b>
<b>00.014 (01.024)</b>	<b>Preset Reference 4</b>
Read-Write ↓	± Pr <b>00.002</b> or Pr <b>00.001</b> to Pr <b>00.002</b> (Hz) → 0.00 Hz

These parameters define the value for preset references 2 to 4.

<b>00.015</b>	<b>Not used</b>
---------------	-----------------

<b>00.016 (07.008)</b>	<b>ADI1 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

This parameter is used, if necessary, to scale the analog input. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr **00.016** has no effect if ADI1 Mode (**00.011**) = Digital.

<b>00.017 (08.002)</b>	<b>DI2 Input State</b>
Read-Only ↓	0 or 1 → -

Displays the state for digital input 2.

<b>00.018 (08.012)</b>	<b>DI2 Invert</b>
<b>00.019 (07.009)</b>	<b>ADI1 Invert</b>
<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
<b>00.021 (08.011)</b>	<b>DIO1 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input or output signal.

<b>00.022 (08.001)</b>	<b>DIO1 Output State</b>
Read-Only ↓	0 or 1 → -

Displays the state for DIO1 which is pre-configured as a digital output.

<b>00.023</b>	<b>Not used</b>
---------------	-----------------

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

**Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).**

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

**• If Pr 00.025 = 0 to 15**

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

**• If Pr 00.025 = 16**

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b>	<b>Not used</b>
---------------	-----------------

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required. For more information about LED management, refer to the user and technical guide ref.5512.



- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

• Parameter explanation

<b>00.011 (07.007)</b>	<b>ADI1 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.012 (01.022)</b>	<b>Preset Reference 2</b>
<b>00.013 (01.023)</b>	<b>Preset Reference 3</b>
<b>00.014 (01.024)</b>	<b>Preset Reference 4</b>
Read-Write ↓	± Pr 00.002 or Pr 00.001 to Pr 00.002 (Hz) → 0.00 Hz

These parameters define the value for preset references 2 to 4.

<b>00.015</b>	<b>Not used</b>
---------------	-----------------

<b>00.016 (07.008)</b>	<b>ADI1 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

This parameter is used, if necessary, to scale the analog input. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr 00.016 has no effect if ADI1 Mode (00.011) = Digital.

<b>00.017 and 00.018</b>	<b>Not used</b>
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<b>00.019 (07.009)</b>	<b>ADI1 Invert</b>
<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
<b>00.021 (08.011)</b>	<b>DIO1 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input or output signal.

<b>00.022 (08.001)</b>	<b>DIO1 Input State</b>
Read-Only ↓	0 or 1 → -

Displays the state for DIO1 which is pre-configured as a digital input.

<b>00.023</b>	<b>Not used</b>
---------------	-----------------

<b>00.024 (07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).

<b>00.025 (07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr 00.025 = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr 00.027 (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr 00.089(04.002) Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr 00.025 = 16

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr 00.027.

To know the output voltage value for the defined LED states, please see Pr 00.029.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 →
	• ID300: 06.038 • ID302: 0.000

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr 00.026 if required.

Pr	Description
10.032	External trip
10.033	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr 06.038) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr 00.025 = 16.

As an example, find below parameters that could be set in Pr 00.027 if required.

Pr	Description
06.029	Hardware enable
10.003	Zero frequency
10.006	At frequency
10.009	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr 00.028 if required.

Pr	Description
10.032	External trip
10.033	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr 06.032). If necessary it can be disabled by setting Pr 00.028 to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr 00.029 displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr 00.027 if required. For more information about LED management, refer to the user and technical guide ref.5512.



• Parameter explanation

<b>00.011</b> <b>(01.021)</b>	<b>Preset Reference 1</b>
<b>00.012</b> <b>(01.022)</b>	<b>Preset Reference 2</b>
<b>00.013</b> <b>(01.023)</b>	<b>Preset Reference 3</b>
<b>00.014</b> <b>(01.024)</b>	<b>Preset Reference 4</b>
<b>00.015</b> <b>(01.025)</b>	<b>Preset Reference 5</b>
<b>00.016</b> <b>(01.026)</b>	<b>Preset Reference 6</b>
<b>00.017</b> <b>(01.027)</b>	<b>Preset Reference 7</b>
<b>00.018</b> <b>(01.028)</b>	<b>Preset Reference 8</b>
Read-Write ↓	± Pr <b>00.002</b> or Pr <b>00.001</b> to Pr <b>00.002</b> (Hz) → 0.00 Hz

These parameters define the value for preset reference 1 to preset reference 8.

<b>00.019</b> <b>(07.009)</b>	<b>ADI1 Invert</b>
<b>00.020</b> <b>(07.013)</b>	<b>ADI2 Invert</b>
<b>00.021</b> <b>(08.011)</b>	<b>DIO1 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input or output signal.

<b>00.022</b> <b>(08.001)</b>	<b>DIO1 Input State</b>
Read-Only ↓	0 or 1 → -

Displays the state for DIO1 which is pre-configured as a digital input.

<b>00.023</b>	<b>Not used</b>
---------------	-----------------

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

Pr **00.024** should remain at 1.000 if Pr **00.025** Output Control is set to 16 (LED management).

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025** = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025** = 16

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.



<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>		
Read-Write ↓	0.000 to 30.999	→	<ul style="list-style-type: none"> <li>• ID300: 06.038</li> <li>• ID302: 0.000</li> </ul>

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>		
Read-Write ↓	0.000 to 30.999	→	0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>		
Read-Write ↓	0.000 to 30.999	→	06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>		
Read-Only ↓	± 100.00 %	→	-

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required.  
For more information about LED management, refer to the user and technical guide ref.5512.



• Parameter explanation

**00.011 to 00.013** Not used

<b>00.014 (07.045)</b>	<b>ADI2 Thermistor Mode</b>
Read-Write ↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3) → Thermistor (2)

This parameter defines ADI2 mode which can be a digital input or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide (www.commanderID300.info).

Value	Mode	Function
0	An/Dig Input	Digital input
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

<b>00.015 (07.047)</b>	<b>Thermistor Feedback</b>
Read-Only ↓	0 to 4000 Ω → -

This parameter shows the measured resistance of the thermistor connected to ADI2 (if the thermistor connected and set correctly, see Pr **00.014** for more details).

**00.016 to 00.019** Not used

<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
Read-Write ↓	0 or 1 → 0

This parameter is used, if necessary, to invert the signal on ADI2 which is pre-configured as an input.

**00.021 and 00.022** Not used

<b>00.023 (07.014)</b>	<b>ADI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → 0.000

Defines the output parameter (destination) for ADI2 which is pre-configured as a digital input (terminal 4).

As an example, find below parameters that could be set in Pr **00.023** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, no destination parameter is assigned.

If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 is function forced to be a thermistor input. Thus the setting of Pr **00.023** is not active. To be able to use Pr **00.023**, Pr **00.014** should be set to 'An/Dig input'.

<b>00.024 (07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

**Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).**

<b>00.025 (07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025 = 0 to 15**

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025 = 16**

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>		
Read-Write ↓	0.000 to 30.999	→	<ul style="list-style-type: none"> <li>• ID300: 06.038</li> <li>• ID302: 0.000</li> </ul>

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>		
Read-Write ↓	0.000 to 30.999	→	0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

**00.028 Not used**

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>		
Read-Only ↓	± 100.00 %	→	-

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

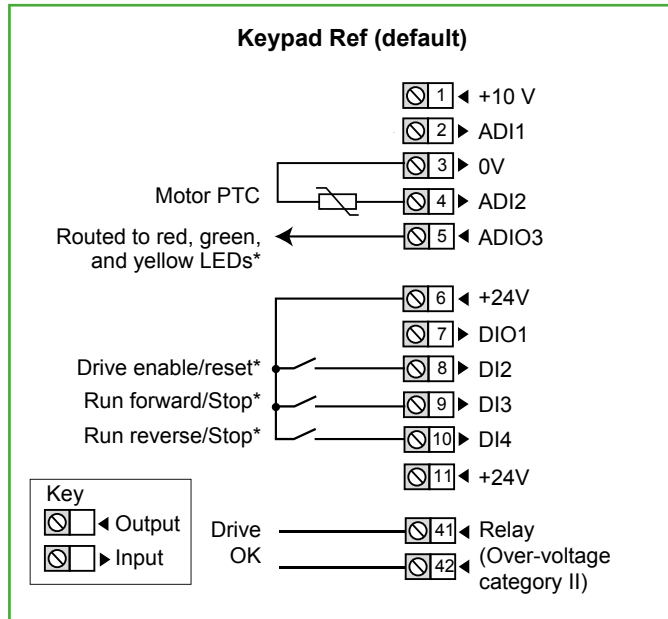
**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required.  
For more information about LED management, refer to the user and technical guide ref.5512.

### 3.6.7 - Keypad Ref: Keypad reference with terminal control

- **Application examples**  
All types of handling machines.

• **Control connections required**



**NOTE**

This configuration needs the use of a keypad option (ID-SIZEx-Keypad or Field Keypad RTC).

\* **Some connections are not necessary in the following cases:**

- If there are LEDs on side flange option, ADIO3 is already connected to them but yellow LED has no function by default. If needed, user defined functions can be set with Pr **00.027**.
- DI2 has no function assigned by default on Commander ID302. For STO connection details, see *section 2.1, page 5*.
- If there are local command buttons (side flange option), DI3 and DI4 are already connected.

• **Parameter list dedicated to this configuration**

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.011	-	Not used		
00.012				
00.013				
00.014	07.045	ADI2 Thermistor Mode	An/Dig Input(0), Therm Short Cct (1), Thermistor (2), Therm No Trip (3)	Thermistor (2)
00.015	07.047	Thermistor Feedback	0 to 4000 Ω	-
00.016	-	Not used		
00.017				
00.018				
00.019				
00.020	07.013	ADI2 Invert	0 or 1	0

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.021	-	Not used		
00.022				
00.023	07.014	ADI2 Destination	0.000 to 30.999	0.000
00.024	07.020	ADIO3 Output scaling	0.000 to 40.000	1.000
00.025	07.057	ADIO3 Output Control	0 to 16	16
00.026	08.022	DI2 Destination	0.000 to 30.999	• ID300: <b>06.038</b> • ID302: 0.000
00.027	07.019	ADIO3 Yellow LED source	0.000 to 30.999	0.000
00.028	08.024	DI4 Destination	0.000 à 30.999	<b>06.032</b>
00.029	07.003	ADIO3 Output State	± 100.00 %	-

• **FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- An ID- SIZEx-Keypad or Field Keypad RTC is connected to the drive.
- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open).
- Power up the drive
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz)
- Close the Enable terminal 8 or the STO terminals 31 & 34
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Increase the speed by maintaining the Keypad upper row until the required reference is reached.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

• Parameter explanation

**00.011 to 00.013** Not used

**00.014 (07.045) ADI2 Thermistor Mode**

Read-Write	↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3)	→	Thermistor (2)
------------	---	--	---	----------------

This parameter defines ADI2 mode which can be a digital input or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide ([www.commanderID300.info](http://www.commanderID300.info)).

Value	Mode	Function
0	An/Dig Input	Digital input
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

**00.015 (07.047) Thermistor Feedback**

Read-Only	↓	0 to 4000 Ω	→	-
-----------	---	-------------	---	---

This parameter shows the measured resistance of the thermistor connected to ADI2 (if the thermistor connected and set correctly, see Pr **00.014** for more details).

**00.016 to 00.019** Not used

**00.020 (07.013) ADI2 Invert**

Read-Write	↓	0 or 1	→	0
------------	---	--------	---	---

This parameter is used, if necessary, to invert the signal on ADI2 which is pre-configured as an input.

**00.021 and 00.022** Not used

**00.023 (07.014) ADI2 Destination**

Read-Write	↓	0.000 to 30.999	→	0.000
------------	---	-----------------	---	-------

Defines the output parameter (destination) for ADI2 which is pre-configured as a digital input (terminal 4).

As an example, find below parameters that could be set in Pr **00.023** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, no destination parameter is assigned.

If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 is function forced to be a thermistor input. Thus the setting of Pr **00.023** is not active. To be able to use Pr **00.023**, Pr **00.014** should be set to 'An/Dig input'.

**00.024 (07.020) ADIO3 Output Scaling**

Read-Write	↓	0.000 to 40.000	→	1.000
------------	---	-----------------	---	-------

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

**Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).**

**00.025 (07.057) ADIO3 Output Control**

Read-Write	↓	0 to 16	→	16
------------	---	---------	---	----

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025 = 0 to 15**

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025 = 16**

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>		
Read-Write	↓	0.000 to 30.999	→
			<ul style="list-style-type: none"> <li>• ID300: 06.038</li> <li>• ID302: 0.000</li> </ul>

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>		
Read-Write	↓	0.000 to 30.999	→ 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>		
Read-Write	↓	0.000 to 30.999	→ 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>		
Read-Only	↓	± 100.00 %	→ -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required.  
For more information about LED management, refer to the user and technical guide ref.5512.





- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Close/open either Up/down contacts as required (latched contacts)
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

• Parameter explanation

<b>00.011 to 00.013</b>	<b>Not used</b>
-------------------------	-----------------

<b>00.014 (07.045)</b>	<b>ADI2 Thermistor Mode</b>
Read-Write ↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3) → Thermistor (2)

This parameter defines ADI2 mode which can be a digital input or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide ([www.commanderID300.info](http://www.commanderID300.info)).

Value	Mode	Function
0	An/Dig Input	Digital input
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

<b>00.015 (07.047)</b>	<b>Thermistor Feedback</b>
Read-Only ↓	0 to 4000 Ω → -

This parameter shows the measured resistance of the thermistor connected to ADI2 (if the thermistor connected and set correctly, see Pr **00.014** for more details).

<b>00.016 (09.028)</b>	<b>Motorised Pot Reset</b>
Read-Write ↓	0 or 1 → 0

When this parameter is set to 1, the Pr **00.021** Motorised Pot Output is reset to zero.

<b>00.017 (09.022)</b>	<b>Motorised Pot Bipolar Select</b>
Read-Write ↓	0 or 1 → 0

When this parameter is set to 1, bipolar operation of the motorised pot is enabled.

If it is set to 0, the Motorised Pot output range is 0.00% to 100.00%; if it is set to 1, output range is allowed to change in the range from -100.00% to 100.00%.

<b>00.018 (09.023)</b>	<b>Motorised Pot Rate</b>
Read-Write ↓	0 to 250 s → 20 s

The rate of change of Motorised Pot Output is defined by Pr **00.018** which gives the time to change from 0 to 100%. The time to change from -100% to 100% is Motorised Pot Rate Pr **00.018** x 2.

<b>00.019 (09.021)</b>	<b>Motorised Pot Mode</b>
Read-Write ↓	0 to 4 → 0

This parameter defines the mode of operation as given in the table below.

Pr 00.019 Value	Motorised Pot Output Pr 00.021	Mot. Pot Up & Down (DIO1 & ADI1)
0	Reset to zero at power-up	Always active
1	Set to power-down value at power-up	
2	Reset to zero at power-up	Active When 'Drive Active' (Pr <b>00.080</b> = 1)
3	Set to power-down value at power-up	
4	Reset to zero at power-up and when 'Drive Active' Pr <b>00.080</b> = 0	

<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
Read-Write ↓	0 or 1 → 0

This parameter is used, if necessary, to invert the signal on ADI2 which is pre-configured as an input.

<b>00.021 (09.003)</b>	<b>Motorised Pot Output</b>
Read-Only ↓	± 100.00 % → -

Shows the output level of the motorised pot function.

<b>00.022 (09.024)</b>	<b>Motorised Pot Scaling</b>
Read-Write ↓	0.000 to 4.000 → 1.000

Introduces a scaling factor at the output of the motorised pot before the output is routed to the destination.

<b>00.023 (07.014)</b>	<b>ADI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → 0.000

Defines the output parameter (destination) for ADI2 which is pre-configured as a digital input (terminal 4).

As an example, find below parameters that could be set in Pr **00.023** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, no destination parameter is assigned. If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 is function forced to be a thermistor input. Thus the setting of Pr **00.023** is not active. To be able to use Pr **00.023**, Pr **00.014** should be set to 'An/Dig input'.

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

**Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).**

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr 00.025 = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr 00.025 = 16

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.038 • ID300: 06.038 • ID302: 0.000

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

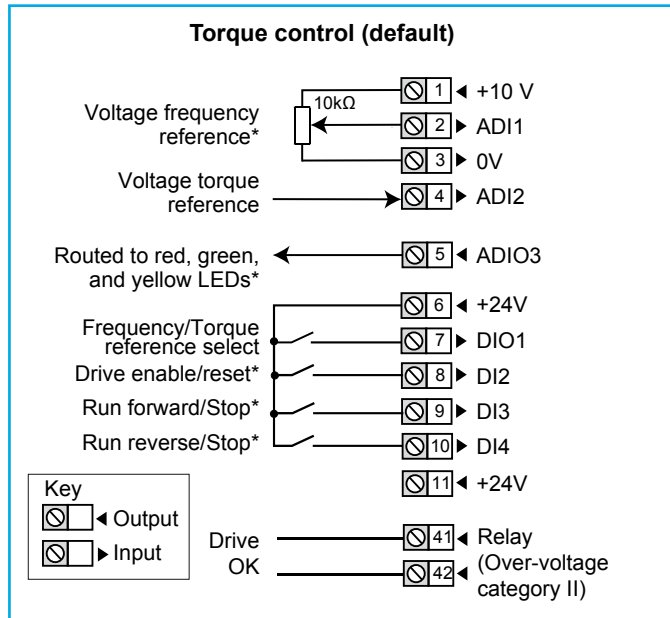
By default, Yellow LED is not active. See Pr **00.027** if required. For more information about LED management, refer to the user and technical guide ref.5512.

### 3.6.9 - Torque control: Voltage frequency reference (ADI1) or voltage torque reference (ADI2) selected by terminal

**• Application examples**

Small winches (frequency reference used to wind/unwind the cable, torque control to maintain cable tension).

**• Control connections required**



**\* Some connections are not necessary in the following cases:**

- If there is a local potentiometer (side flange options), ADI1 is already connected.
- If there are LEDs on side flange option, ADIO3 is already connected to them but yellow LED has no function by default. If needed, user defined functions can be set with Pr **00.027**.
- DI2 has no function assigned by default on Commander ID302. For STO connection details, see *section 2.1, page 5*.
- If there are local command buttons (side flange option), DI3 and DI4 are already connected.

**• Parameter list dedicated to this configuration**

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
<b>00.011</b>	07.007	ADI1 Mode	4-20mA Stop(-6), 20-4mA Stop (-5), 4-20mA Low (-4), 20-4mA Low (-3), 4-20mA Hold (-2), 20-4mA Hold (-1), 0-20mA (0), 20-0mA (1), 4-20mA Trp (2), 20-4mA Trp (3), 4-20mA (4), 20-4mA (5), Voltage (6), Digital (7)	Voltage (6)
<b>00.012</b>	07.011	ADI2 Mode		
<b>00.013</b>				
<b>00.014</b>	-	Not used		
<b>00.015</b>				
<b>00.016</b>	07.008	ADI1 Scaling	0.000 to 10.000	1.000

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
<b>00.017</b>	07.012	ADI2 Scaling	0.000 to 10.000	1.000
<b>00.018</b>	-	Not used		
<b>00.019</b>	07.009	ADI1 Invert	0 or 1	0
<b>00.020</b>	07.013	ADI2 Invert	0 or 1	0
<b>00.021</b>	-	Not used		
<b>00.022</b>	08.001	DIO1 Input State	0 or 1	-
<b>00.023</b>	-	Not used		
<b>00.024</b>	07.020	ADIO3 Output Scaling	0.000 to 40.000	1.000
<b>00.025</b>	07.057	ADIO3 Output Control	0 to 16	16
<b>00.026</b>	08.022	DI2 Destination	0.000 to 30.999	• ID300: <b>06.038</b> • ID302: 0
<b>00.027</b>	07.019	ADIO3 Yellow LED source	0.000 to 30.999	0.000
<b>00.028</b>	08.024	DI4 Destination	0.000 à 30.999	<b>06.032</b>
<b>00.029</b>	07.003	ADIO3 Output State	± 100.00 %	-

**• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open).
- Power up the drive.
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz).
- The reference selection will be as follows:

DIO1	Selected reference
Open	Voltage frequency reference on ADI1
Closed	Torque reference on ADI2

- Close the Enable terminal 8 or the STO terminals 31 & 34
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Adjust the frequency or Torque reference until the correct speed reference is reached.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

**⚠ • When torque mode is selected and the drive is connected to an unloaded motor, the motor speed may increase rapidly to the maximum speed (Pr 00.002 + 10%).**

**• Do not change from speed to torque regulation whilst Run command is active.**

• Parameter explanation

<b>00.011</b> <b>(07.007)</b>	<b>ADI1 Mode</b>
<b>00.012</b> <b>(07.011)</b>	<b>ADI2 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.013 to 00.15</b>	<b>Not used</b>
------------------------	-----------------

<b>00.016</b> <b>(07.008)</b>	<b>ADI1 Scaling</b>
<b>00.017</b> <b>(07.012)</b>	<b>ADI2 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

These parameters are used, if necessary, to scale the analog inputs. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr **00.016** and **00.017** have no effect if ADI1 Mode (**00.011**) or ADI2 Mode (**00.012**) = Digital.

<b>00.018</b>	<b>Not used</b>
---------------	-----------------

<b>00.019</b> <b>(07.009)</b>	<b>ADI1 Invert</b>
<b>00.020</b> <b>(07.013)</b>	<b>ADI2 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input signal.

<b>00.021</b>	<b>Not used</b>
---------------	-----------------

<b>00.022</b> <b>(08.001)</b>	<b>DIO1 Input State</b>
Read-Only ↓	0 or 1 → -

This parameter displays the state for DIO1 which is pre-configured as a digital input to select either frequency or torque reference.

<b>00.023</b>	<b>Not used</b>
---------------	-----------------

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**  
Pr **00.024** should remain at 1.000 if Pr **00.025** Output Control is set to 16 (LED management).

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025** = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025** = 16  
ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026 (08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 →
	<ul style="list-style-type: none"> <li>• ID300: 06.038</li> <li>• ID302: 0.000</li> </ul>

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027 (07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028 (08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029 (07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

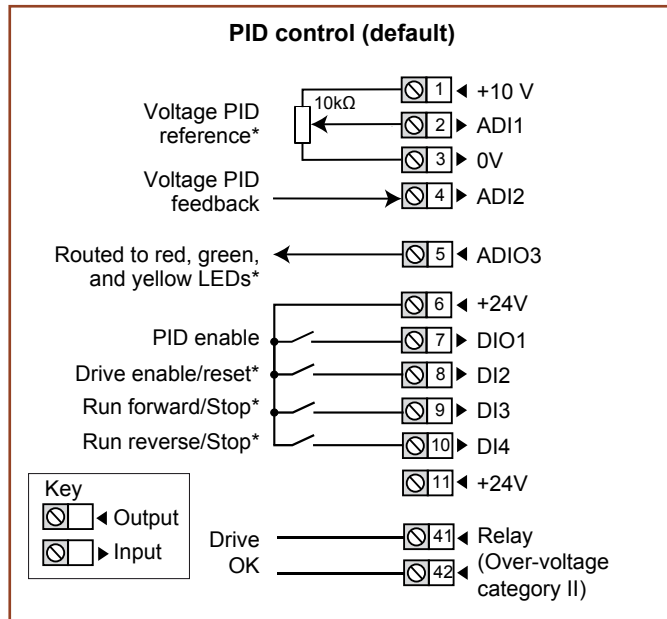
By default, Yellow LED is not active. See Pr **00.027** if required. For more information about LED management, refer to the user and technical guide ref.5512.

3.6.10 - PID control: Voltage reference source (ADI1) and Voltage feedback source (ADI2)

• Application examples

All kinds of regulation for pressure, temperature, flow, etc.

• Control connections required



\* Some connections are not necessary in the following cases:

- If there is a local potentiometer (side flange options), ADI1 is already connected.
- If there are LEDs on side flange option, ADIO3 is already connected to them but yellow LED has no function by default. If needed, user defined functions can be set with Pr **00.027**.
- DI2 has no function assigned by default on Commander ID302. For STO connection details, see section 2.1, page 5.
- If there are local command buttons (side flange option), DI3 and DI4 are already connected.

• Parameter list dedicated to this configuration

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
<b>00.011</b>	07.007	ADI1 Mode	4-20mA Stop(-6), 20-4mA Stop (-5), 4-20mA Low (-4), 20-4mA Low (-3), 4-20mA Hold (-2), 20-4mA Hold (-1), 0-20mA (0), 20-0mA (1), 4-20mA Trp (2), 20-4mA Trp (3), 4-20mA (4), 20-4mA (5), Voltage (6), Digital (7)	Voltage (6)
<b>00.012</b>	07.011	ADI2 Mode		
<b>00.013</b>	14.010	PID Proportional Gain	0.000 to 4.000	1.000
<b>00.014</b>	14.011	PID Integral Gain	0.000 to 4.000	0.500

Menu 0	Adv. menu	Function	Range	Default value
<b>00.015</b>	14.012	PID Differential Gain	0.000 to 4.000	0.000
<b>00.016</b>	14.013	PID Output Upper Limit	0.00 to 100.00 %	100.00 %
<b>00.017</b>	14.014	PID Output Lower Limit	± 100.00 %	- 100.00 %
<b>00.018</b>	14.015	PID Output Scaling	0.000 to 4.000	1.000
<b>00.019</b>	14.024	PID Feedback Scaling	0.000 to 4.000	1.000
<b>00.020</b>	14.021	PID Feedback	± 100.00 %	-
<b>00.021</b>	14.006	PID Feedback Invert	0 or 1	0
<b>00.022</b>	14.020	PID Reference	± 100.00 %	-
<b>00.023</b>	14.022	PID Error	± 100%	-
<b>00.024</b>	14.001	PID Output	± 100%	-
<b>00.025</b>	07.057	ADIO3 Output Control	0 to 16	16
<b>00.026</b>	08.022	DI2 Destination	0.000 to 30.999	• ID300: <b>06.038</b> • ID302: 0.000
<b>00.027</b>	07.019	ADIO3 Yellow LED source	0.000 to 30.999	0.000
<b>00.028</b>	08.024	DI4 Destination	0.000 à 30.999	<b>06.032</b>
<b>00.029</b>	07.003	ADIO3 Output State	± 100.00 %	-

• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open).
- Power up the drive.
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz).
- Close the Enable terminal 8 or the STO terminals 31 & 34.
- Give a Run Forward or Run Reverse command by closing either terminal 9 or 10, or press the relevant button from the flange option.
- Close terminal 7 to enable the PID.
- Adjust the PID reference.
- Stopping the motor: open terminal 9 or 10 to stop the motor under ramp control or remove the Enable signal by opening terminal 8 or 31 & 34 and the motor will coast to a stop. With the flange option, press the Stop button.

• Parameter explanation

<b>00.011</b> <b>(07.007)</b>	<b>ADI1 Mode</b>
<b>00.012</b> <b>(07.011)</b>	<b>ADI2 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.013</b> <b>(14.010)</b>	<b>PID Proportional gain</b>
Read-Write ↓	0.000 to 4.000 → 1.000

This is the proportional gain applied to the PID error.

<b>00.014</b> <b>(14.011)</b>	<b>PID Integral gain</b>
Read-Write ↓	0.000 to 4.000 → 0.500

This is the integral gain applied to the PID error.

<b>00.015</b> <b>(14.012)</b>	<b>PID Differential gain</b>
Read-Write ↓	0.000 to 4.000 → 0.500

This is the differential gain applied to the PID error.

<b>00.016</b> <b>(14.013)</b>	<b>PID Output Upper Limit</b>
Read-Write ↓	±100.00 % → 100.00 %

<b>00.017</b> <b>(14.014)</b>	<b>PID Output Lower Limit</b>
Read-Write ↓	± 100.00 % → -100.00 %

The output can be limited to a range that is less than the maximum range of Pr **00.024** PID Output using Pr **00.016** PID Output Upper Limit and Pr **00.017** PID Output Lower Limit.

<b>00.018</b> <b>(14.015)</b>	<b>PID Output Scaling</b>
Read-Write ↓	0.000 to 4.000 → 1.000

This parameter can be used to scale the output.

<b>00.019</b> <b>(14.024)</b>	<b>PID Feedback Scaling</b>
Read-Write ↓	0.000 to 4.000 → 1.000

This parameter defines the scaling factor of the PID feedback.

<b>00.020</b> <b>(14.021)</b>	<b>PID Feedback</b>
Read-Only ↓	±100.00 % → -

This parameter displays the value of the PID feedback.

<b>00.021</b> <b>(14.006)</b>	<b>PID Feedback Invert</b>
Read-Write ↓	0 or 1 → 0

If this parameter is set to 1, the PID feedback signal is inverted.

<b>00.022</b> <b>(14.020)</b>	<b>PID Reference</b>
Read-Only ↓	±100.00 % → -

Displays the value of the PID reference.

<b>00.023</b> <b>(14.022)</b>	<b>PID Error</b>
Read-Only ↓	±100.00 % → -

This parameter displays the value of the error for PID. It is the difference between the reference and feedback.

<b>00.024</b> <b>(14.001)</b>	<b>PID Output</b>
Read-Only ↓	±100.00 % → -

This parameter displays the value of the PID controller output level.

Pr **00.024** = Pr **00.023** PID Error x [Pr **00.013** (Kp) + Pr **00.014** (Ki)/s + s Pr **00.015** (Kd)/(0.064s + 1)].

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr **00.025** = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2

Value	ADIO3 Source	Description
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr **00.025 = 16**

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026 (08.022) DI2 Destination</b>	
Read-Write ↓	0.000 to 30.999 →
	<ul style="list-style-type: none"> <li>• ID300: 06.038</li> <li>• ID302: 0.000</li> </ul>

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027 (07.019) ADIO3 Yellow LED Source</b>	
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025 = 16**.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028 (08.024) DI4 Destination</b>	
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029 (07.003) ADIO3 Output State</b>	
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required.

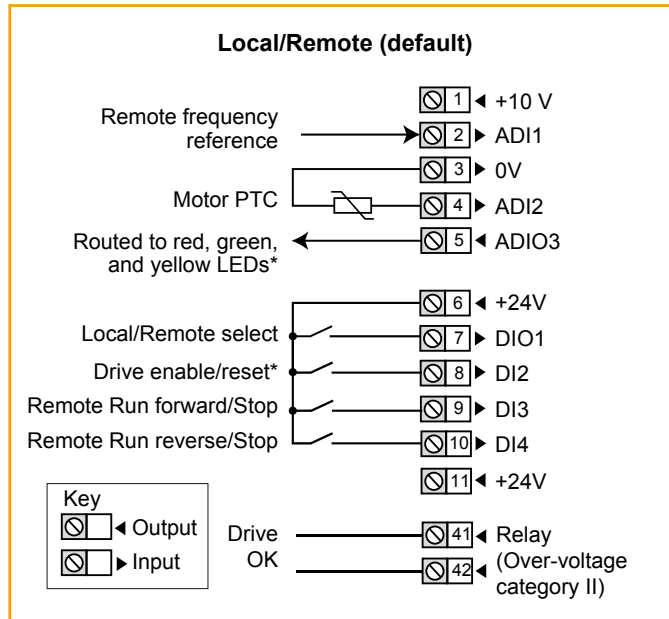
For more information about LED management, refer to the user and technical guide ref.5512.



### 3.6.11 - Local/Remote: Voltage frequency reference (ADI1) with terminal control or Keypad reference with Keypad control selected by terminal

- **Application examples**  
Mobil pumps for fluid transfer.

• **Control connections required**



**CAUTION**  
This configuration needs the use of a keypad option (ID-SIZEx-Keypad or Field Keypad RTC), and does NOT match with ID-RUN\_POT\_LED\_FLANGE option.

\* **Some connections are not necessary in the following cases:**

- If there are LEDs on side flange option, ADIO3 is already connected to them but yellow LED has no function by default. If needed, user defined functions can be set with Pr **00.027**.
- DI2 has no function assigned by default on Commander ID302. For STO connection details, see *section 2.1, page 5*.

**NOTE**

- If the motor has no PTC probe, there is no connection on ADI2 and 0V terminals. To avoid any trip from the drive, set Pr **00.014** to 'Therm No Trip(3)'

• **Parameter list dedicated to this configuration**

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.011	07.007	ADI1 Mode	4-20mA Stop(-6), 20-4mA Stop (-5), 4-20mA Low (-4), 20-4mA Low (-3), 4-20mA Hold (-2), 20-4mA Hold (-1), 0-20mA (0), 20-0mA (1), 4-20mA Trp (2), 20-4mA Trp (3), 4-20mA (4), 20-4mA (5), Voltage (6), Digital (7)	Voltage (6)

Parameter	Menu 0	Adv. menu	Function	Range	Default value
00.013	-	Not used			
00.014	07.045	ADI2 Thermistor Mode	An/Dig Input (0), Therm Short Cct (1), Thermistor (2), Therm No Trip (3)	Thermistor (2)	
00.015	07.047	Thermistor Feedback	0 to 4000 Ω	-	
00.016	07.008	ADI1 Scaling	0.000 to 10.000	1.000	
00.017	-	Not used			
00.018	-	Not used			
00.019	07.009	ADI1 Invert	0 or 1	0	
00.020	07.013	ADI2 Invert	0 or 1	0	
00.021	-	Not used			
00.022	-	Not used			
00.023	07.014	ADI2 Destination	0.000 to 30.999	0.000	
00.024	07.020	ADIO3 Output Scaling	0.000 to 40.000	1.000	
00.025	07.057	ADIO3 Output Control	0 to 16	16	
00.026	08.022	DI2 Destination	0 to 30.999	• ID300: <b>06.038</b> • ID302: 0.000	
00.027	07.019	ADIO3 Yellow LED source	0.000 to 30.999	0.000	
00.028	08.024	DI4 Destination	0.000 à 30.999	<b>06.032</b>	
00.029	07.003	ADIO3 Output State	± 100.00 %	-	

• **FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)**

- Make the required control connections as indicated above.
- During parameter setting, the drive must be disabled (terminal 8 or terminals 31 and 34 are open).
- Power up the drive.
- If required set the maximum frequency Pr **00.002** (Hz), minimum frequency Pr **00.001** (Hz), acceleration rate Pr **00.003** (s/100 Hz) and deceleration rate Pr **00.004** (s/100Hz).

- DIO1 will allow the following selection:

DIO1	Selection
Open	<b>Remote:</b> Frequency reference on ADI1 (0-10V) and Run/Stop commands on DI3 or DI4
Closed	<b>Local:</b> Frequency reference and Run/Stop commands from keypad option

- Close the Enable terminal 8 or the STO terminals 31 & 34.

- Give a Run Forward or Run Reverse command from control terminal or keypad.
- Adjust the frequency reference from control terminal/ Potentiometer or keypad.
- Stopping the motor: Giving a stop command (from terminals or Keypad) will stop the motor under ramp control. Removing the Enable signal by opening terminal 8 or 31 & 34 will coast the motor to a stop.

**NOTE**

After a remote to local mode transition, the motor stops. The next start should be given by the keypad. After a local to remote mode transition, if the run command is enabled the motor will run up to remote frequency reference. It is then suggested to add an interlock between the remote run command and the local/remote selector.

• **Parameter explanation**

<b>00.011 (07.007)</b>	<b>ADI1 Mode</b>
Read-Write ↓	See table below → Voltage

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital

<sup>(1)</sup> Current loss: the current is below 3mA.

**00.012 and 00.013 Not used**

<b>00.014 (07.045)</b>	<b>ADI2 Thermistor Mode</b>
Read-Write ↓	An/Dig Input(0), Therm Short Cct(1), Thermistor(2), Therm No Trip(3) → Thermistor (2)

This parameter defines ADI2 mode which can be a digital input or a temperature measurement of a thermistor. The thermistor can be connected between ADI2 and 0V. By default, the thermistor type is a PTC (DIN44081). If another thermistor is used, refer to Pr **07.046** in the Parameter Reference Guide ([www.commanderID300.info](http://www.commanderID300.info)).

Value	Mode	Function
0	An/Dig Input	Digital input

Value	Mode	Function
1	Therm Short Cct	Temperature measurement input with short circuit detection (Resistance <50 Ω) with 'Th Short Circuit' trip
2	Thermistor	Temperature measurement input without short circuit detection but with 'Thermistor' trip
3	Therm No Trip	Temperature measurement input with no trip

<b>00.015 (07.047)</b>	<b>Thermistor Feedback</b>
Read-Only ↓	0 to 4000 Ω → -

This parameter shows the measured resistance of the thermistor connected to ADI2 (if the thermistor connected and set correctly, see Pr **00.014** for more details).

<b>00.016 (07.008)</b>	<b>ADI1 Scaling</b>
Read-Write ↓	0 to 10.000 → 1.000

These parameters are used, if necessary, to scale the analog inputs. However, this rarely proves necessary since the maximum input level (100%) automatically corresponds to the maximum value of the destination parameter. Pr **00.016** has no effect if ADI1 Mode (**00.011**) = Digital.

**00.017 and 00.018 Not used**

<b>00.019 (07.009)</b>	<b>ADI1 Invert</b>
------------------------	--------------------

<b>00.020 (07.013)</b>	<b>ADI2 Invert</b>
Read-Write ↓	0 or 1 → 0

These parameters are used, if necessary, to invert the input signal.

**00.021 and 00.022 Not used**

<b>00.023 (07.014)</b>	<b>ADI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → 0.000

Defines the output parameter (destination) for ADI2 which is pre-configured as a digital input (terminal 4).

As an example, find below parameters that could be set in Pr **00.023** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, no destination parameter is assigned.

If Pr **00.014** is set to 'Therm Short Cct', 'Thermistor' or 'Therm No Trip', the ADI2 is function forced to be a thermistor input. Thus the setting of Pr **00.023** is not active. To be able to use Pr **00.023**, Pr **00.014** should be set to 'An/Dig input'.

<b>00.024</b> <b>(07.020)</b>	<b>ADIO3 Output Scaling</b>
Read-Write ↓	0.000 to 40.000 → 1.000

This parameter is used, if necessary, to scale the analog output. However, this rarely proves necessary since the maximum output level (100%) automatically corresponds to the maximum value of the source parameter.

**CAUTION**

**Pr 00.024 should remain at 1.000 if Pr 00.025 Output Control is set to 16 (LED management).**

<b>00.025</b> <b>(07.057)</b>	<b>ADIO3 Output Control</b>
Read-Write ↓	0 to 16 → 16

This parameter offers a simple way to change the source function of the ADIO3 output.

• If Pr 00.025 = 0 to 15

Value	ADIO3 Source	Description
0	<b>00.000</b>	User defined by Pr <b>00.027</b> (no LED management). No source assigned by default
1	<b>02.001</b>	Post Ramp frequency reference
2	<b>00.082</b>	Pre Ramp frequency reference
3	<b>00.087</b>	Motor rpm
4	<b>00.088</b>	Current Magnitude
5	-	Reserved
6	<b>04.020</b>	Percentage load. Gives Pr <b>00.089(04.002)</b> Torque Producing Current as a percentage.
7	<b>00.089</b>	Torque producing current
8	<b>00.086</b>	Voltage output
9	<b>00.084</b>	DC bus voltage
10	<b>00.094</b>	Analogue Input 1
11	<b>00.095</b>	Analogue Input 2
12	<b>05.003</b>	Power output
13	<b>04.018</b>	Current limit
14	<b>04.008</b>	Torque reference
15	-	Reserved

• If Pr 00.025 = 16

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted.

The **Red LED** is illuminated if the drive is in a trip state, flashes if the drive is running with an alarm condition, and is off if the drive is healthy and not in an alarm condition.

The **Green LED** is illuminated if the input supply is healthy, flashes if the input supply is healthy and the drive output is active, and is off if the incoming supply is not healthy.

The **Yellow LED** is user defined and can be used to indicate any parameter by setting Pr **00.027**.

To know the output voltage value for the defined LED states, please see Pr **00.029**.

For more information about LED management, refer to the user and technical guide ref.5512.

<b>00.026</b> <b>(08.022)</b>	<b>DI2 Destination</b>
Read-Write ↓	0.000 to 30.999 → • ID300: 06.038 • ID302: 0.000

This parameter defines the input (destination) parameter for digital input 2.

As an example, find below parameters that could be set in Pr **00.026** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

For the Commander ID300, this input is assigned to the user enable function (Pr **06.038**) by default, and is not assigned for Commander ID302.

<b>00.027</b> <b>(07.019)</b>	<b>ADIO3 Yellow LED Source</b>
Read-Write ↓	0.000 to 30.999 → 0.000

This parameter defines the output (source) parameter that activates yellow LED, if Pr **00.025** = 16.

As an example, find below parameters that could be set in Pr **00.027** if required.

Pr	Description
<b>06.029</b>	Hardware enable
<b>10.003</b>	Zero frequency
<b>10.006</b>	At frequency
<b>10.009</b>	Current limit active

<b>00.028</b> <b>(08.024)</b>	<b>DI4 Destination</b>
Read-Write ↓	0.000 to 30.999 → 06.032

This parameter defines the input (destination) parameter for digital input 4.

As an example, find below parameters that could be set in Pr **00.028** if required.

Pr	Description
<b>10.032</b>	External trip
<b>10.033</b>	Drive reset

**NOTE**

By default, this input is assigned to the Run Reverse function (Pr **06.032**). If necessary it can be disabled by setting Pr **00.028** to 0.000.

<b>00.029</b> <b>(07.003)</b>	<b>ADIO3 Output State</b>
Read-Only ↓	± 100.00 % → -

ADIO3 is used to control the illumination of the 3 LED's on flange option if fitted (Red, Green and Yellow LEDs). Pr **00.029** displays the level of the analog signal.

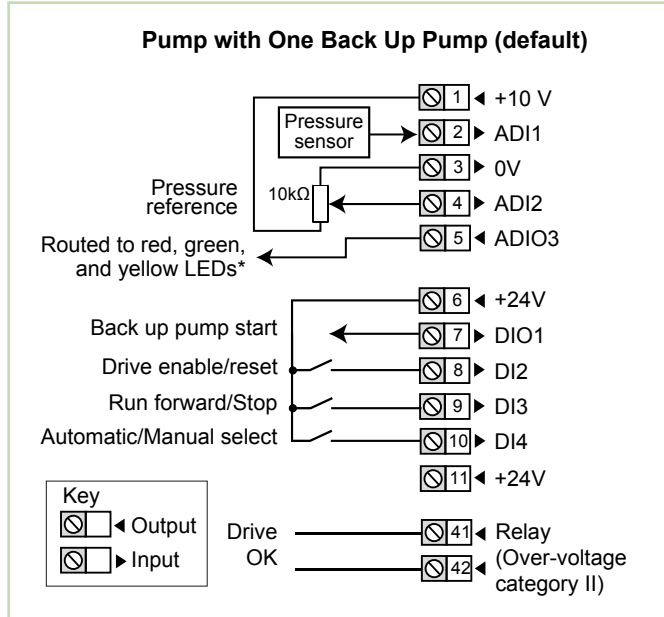
**NOTE**

By default, Yellow LED is not active. See Pr **00.027** if required. For more information about LED management, refer to the user and technical guide ref.5512.

**3.6.12 - Pump: Pump application (Commander ID300 only)**

• Pump application description  
Main functions required by a pump application with pressure regulation (constant pressure / variable flow).

• Control connections required



**CAUTION**

• This configuration description matches Pump Solution program n° 74000100 with program version equal or higher than V01.01.00, and needs the use of a keypad option (ID-SIZEx-Keypad or Field Keypad RTC) or Connect software. For information, this program uses some Menu 18 parameters.

• Pump configuration is not available with Commander ID302 (dedicated to Process applications only).

\* Some connections are not necessary in the following cases:

- If there are LEDs on side flange option, ADIO3 is already connected to them but yellow LED has no function by default. If needed, user defined functions can be set with Pr 07.019.

• Pump configuration operation

On a Run command, PID is enabled to regulate the pressure. If feedback pressure is higher than 110% of the pressure reference or if the pump operates at minimum frequency during a defined delay, the system is in overpressure state. The pump and the regulation are stopped, and the system will start again only if the pressure falls below a defined threshold or if it is less than 90% of the pressure reference.

After a Run command, if the pressure feedback does not pass over a defined threshold during 10 seconds, the pump is considered in pump-off condition. The drive will trip "External trip 3" and will need a drive reset. Overpressure or pump-off condition thresholds are adjustable.

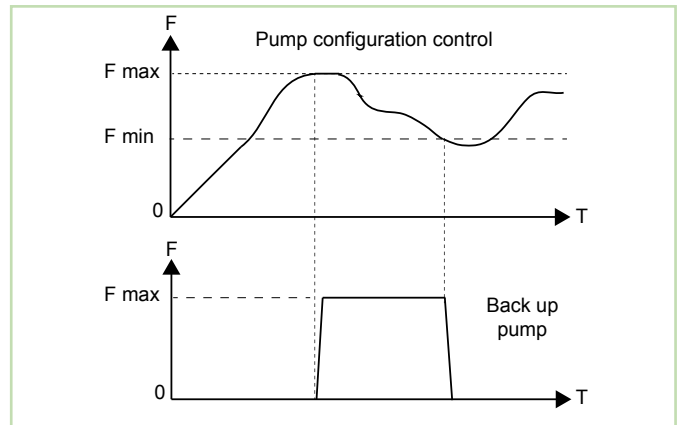
By default, pressure sensor signal is 4-20 mA and pressure reference signal is 0-10V. To connect the pressure sensor, refer to the supplier manual.

DI4	Selection
Open	Automatic mode, pressure regulation
Closed	Manual mode, frequency regulation

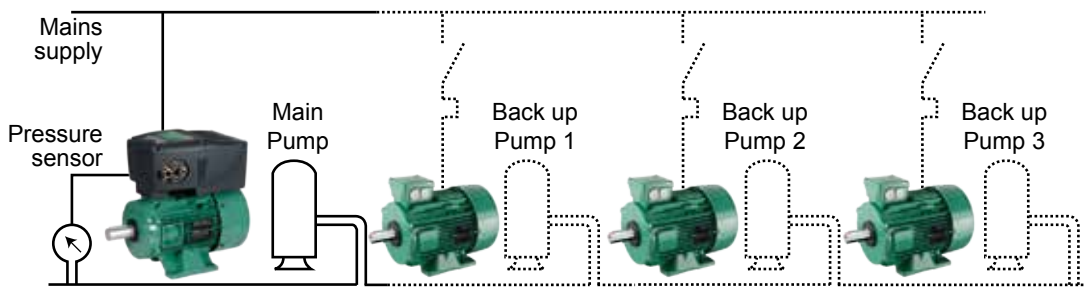
• Back-up pump management

Back up pump management allows the system to start one or few additional pumps (up to 3) in order to maintain a constant pressure on a high flow demand. The pressure regulation is still controlled by the Commander ID300, and the back up pumps run at a fixed speed.

By default, Pump program allows one back-up pump management and DIO1 is used to start it.



• Principle



• Parameter list dedicated to this configuration

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.011	18.026	Hydraulic Circuit Filling	0 to 100%	0
00.012	18.020	Numerical Pressure Reference 1	0.000 to Pr <b>00.021</b>	25 (1/10 <sup>e</sup> bar)
00.013	18.022	Restart Pressure	0.000 to Pr <b>00.021</b>	20 (1/10 <sup>e</sup> bar)
00.014	18.013	Regulation Hysteresis	0 to 1000%	10%
00.015	18.015	Overpressure Delay	0 to 1000 s	25 s
00.016	18.014	Pump-off Condition Threshold	0 to 30000 (1/10 <sup>e</sup> bar)	15 (1/10 <sup>e</sup> bar)
00.017	18.018	Minimum Speed	0 to 100%	80%
00.018	01.022	Manual Frequency	± VM_SPEED_FREQ_REF Hz	50 Hz
00.019	14.010	PID Proportional Gain	0.000 to 4.000	1
00.020	14.011	PID Integral Gain	0.000 to 4.000	0.5
00.021	18.023	Maximum Value of the Pressure	0 to 30000 (1/10 <sup>e</sup> bar)	100 (1/10 <sup>e</sup> bar)
00.022	18.039	Restart Mode	0 or 1	1
00.023	18.037	Analog/ Numerical Reference Select	0 or 1	1
00.024	18.016	Number of Back-up Pumps	0 to 3	0
00.025	05.042	Reverse Output Phase Sequence	0 or 1	0
00.026	18.027	Pump-off condition delay	0 to 1000s	10s
00.027	07.007	ADI1 Mode	4-20mA Stop(-6), 20-4mA Stop (-5), 4-20mA Low (-4), 20-4mA Low (-3), 4-20mA Hold (-2), 20-4mA Hold (-1), 0-20mA (0), 20-0mA (1), 4-20mA Trp (2), 20-4mA Trp (3), 4-20mA (4), 20-4mA (5), Voltage (6), Digital (7)	4-20mA Trp (2)

Parameter		Function	Range	Default value
Menu 0	Adv. menu			
00.028	20.029	Pump Program Version 1	-2147483648 to 2147483647	-
00.029	20.030	Pump Program Version 2	-2147483648 to 2147483647	-

• Additional parameters for more than one back up pump management

Adv. menu Parameter	Function	Range	Default value
18.024	Delay Before Back Up Pump Start	0 to 32 s	2 s
18.025	Delay Before Back Up Pump stop	0 to 32 s	2 s
18.042	Second Back Up Pump Command	0 or 1	0
18.043	Third Back Up Pump Command	0 or 1	0

**NOTE**

Parameters Pr **18.042** and **18.043** can be assigned to digital outputs from the I/O expansion option (ID-SIZE1-I/O or SI-I/O module).

• More details

- It is recommended to use the drive relay (Drive OK) to stop the back up pump as soon as a trip occurs.
- When flow fluctuations are significant (e.g cleaning station), it can be useful to disable overpressure detection to stop back up pumps. Minimum frequency detection can stop them. Set Pr **18.031** = 1 to disable the overpressure.
- When more than one back up pump are used, the intelligent Pump configuration starts/stops pumps so that the wear is equally distributed over the pumps.
- A numerical pressure can be used by setting Pr **00.023(18.037)** to 0. If needed, two numerical pressure references 1 and 2 can be used and selected by Pr **18.036**. If Pr **18.036** is set to 0, this is Pr **00.012(18.020)** Numerical pressure reference 1 which is selected and if it is set to 1, this is Pr **18.021** Numerical pressure reference 2 which is selected. In manual mode, it is possible to use a numerical frequency by setting Pr **00.023** = 0. Then the numerical frequency can be set in Pr **00.018**.
- Dedicated trip "External Trip 3": this trip is generated when the pump is in pump-off condition (pressure equal or below the Pump-off condition threshold Pr **00.016(18.014)**, during the delay set in Pr **00.023(18.027)** which is 10 seconds by default). To reset the trip, check sensor cabling, pump-off condition threshold setting in Pr **00.016**. In the case pump-off condition threshold is incompatible with the application, disable this trip by setting Pr **18.019** = 0.  
**CAUTION: This trip will be then permanently disabled.**

• FOR A QUICK COMMISSIONING (FROM DEFAULT SETTINGS)

Pump (22)

**Before power up, ensure...**

- The drive control connections are made, as shown in the control connection diagram
- The drive is disabled (terminal 8 is open)
- Run command is not enabled (terminal 9 open)

**Power up the drive and select Pump configuration**

- Set Pr **00.005** to "Pump"
- If the drive trips "An Input 1 Loss", refer to section 7.2

**Pressure sensor type**

- Set Pr **00.027** to the required value according to sensor type (4-20mA or 20-4 mA with stop on loss, 0-20mA or 20-0mA with trip on loss, voltage, etc). To know all available modes, refer to the parameter explanation on next page.
- If the drive trips "An Input 1 Loss", refer to section 7.2

**Rotation direction test of the pump in manual mode**

- Unable the drive by closing terminal 8
- Close terminal 10 to select manual mode
- Give a Run forward command by closing terminal 9, and tune the potentiometer to increase the reference.
- Check the rotation direction of the pump (usually 2 or 3 seconds are sufficient)
- Open terminal 9 to stop the pump

Is the rotation direction OK?

Yes

No

Set Pr **00.025** to 1 to change direction of rotation

**Pressure scaling**

- Set Pr **00.021** to the maximum pressure value (1/10<sup>e</sup> bar)
- Example: For a sensor 0-10 bars, set 100 in Pr **00.021**.

**Sensor feedback test**

- Read the percentage of the analog signal in Pr **00.094**
- Ensure the drive is enabled (terminal 8 closed) and in manual mode (terminal 10 closed)
- Close terminal 9 to give a Run command
- Check that the value of Pr **00.094** follows the fluctuations of sensor feedback. Then close terminal 9 to stop the motor.

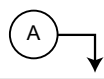
**CAUTION**  
If the value of Pr **00.094** does not change during 10 sec., the drive trips "External trip 3" (normal trip if the pump is in pump-off condition). For more details about this trip, refer to the guide ref.5512.

**Pressure reference choice**

To choose the pressure reference source, set Pr **00.023** as required:

- Pr **00.023** = 0: Numerical value to be set in Pr **00.012** (1/10<sup>e</sup> bar)
- Pr **00.023** = 1: Voltage analog signal (0-10V) from the potentiometer connected to ADI2 (terminal 4). 10 V will match with the maximum value of the signal, previously set in Pr **00.021** (1/10<sup>e</sup> bar). The value read in Pr **00.095** should evolve between 0 and 100%, proportionally to the voltage analog input value.

**NOTE**  
In manual mode, this is a frequency reference.



**No flow condition setting**

- In the case the pump needs to be stopped on no flow condition, the Pump configuration allows an automatic stop of the pump. The stop occurs after a delay set by the user, and when the feedback pressure is above the reference pressure upper threshold or if the pump stays at minimum speed.
- Pr **00.015** sets the delay before stopping the pump (seconds)
- Pr **00.014** sets the hysteresis which is added to the pressure reference to determine the overpressure threshold (%). For example, if pressure reference = 2.5 bars and Pr **00.014** is set to 10, then overpressure threshold will be 2.75 bars.
- Pr **00.017** sets the minimum running frequency of the pump as a percentage of maximum frequency Pr **00.002**. For example, if Pr **00.017** = 80 %, the minimum frequency will be 40 Hz by default.

**CAUTION**  
This setting is important as a too large value will cause lots of pump stops. Similarly, a too small value can damage the pump. To avoid such conditions, set Pr **00.017** to 10%, read drive frequency in Pr **00.085** when the flow is low or equal to zero (e.g close a valve at the pump discharge). Then set Pr **00.017** as follows:

$$Pr\ 00.017 = \frac{(Pr\ 00.085 + 3Hz) \times 100}{Pr\ 00.002} (\%)$$

**Automatic pump restart when flow increases**

The starting threshold depends of the value of Pr **00.022**. By default, it is set to 1.

- Pr **00.022** = 1: the pump restarts only if pressure feedback is below the threshold set in Pr **00.013**.
- Pr **00.022** = 0: the pump restarts only if pressure feedback is below the under-pressure threshold set with the hysteresis Pr **00.014** (this threshold automatically adjusts depending of the signal level).

**NOTE**  
The regulation hysteresis Pr **00.014** has already been set previously to determine the overpressure threshold. For example, if Pr **00.014** = 10% and pressure reference is 2.5 bars, under-pressure threshold will be at 2.25 bars.

**Hydraulic circuit filling when flow is zero**

A pressure offset can be added to the reference to decrease the number of restartings.

- Set Pr **00.011** as a percentage of the pressure reference.

**Back-up pump management (if needed)**

To enable one back-up pump functionality, set Pr **00.024** to 1.

**Running in regulation mode**

- Open terminal 10 to select automatic mode
- Close terminal 9 to run the drive
- Set Pr **00.019** Proportional gain (recommended setting = 2) and Pr **00.020** Integral gain (recommended setting = 2) to improve the dynamic of the regulation.



• Parameter explanation

<b>00.011</b> <b>(18.026)</b>	<b>Hydraulic Circuit Filling</b>
Read-Write ↓	0 to 100% → 0

This parameter defines the pressure offset that can be added to the reference to decrease the number of restartings. Set Pr **00.011** as a percentage of the pressure reference.

<b>00.012</b> <b>(18.020)</b>	<b>Numerical Pressure Reference 1</b>
Read-Write ↓	0 to Pr <b>00.021</b> → 25 (1/10 <sup>e</sup> bar)

The pressure can be set from a numerical reference instead of an analog signal. For this, set the required numerical value in Pr **00.012**.

<b>00.013</b> <b>(18.022)</b>	<b>Restart Pressure</b>
Read-Write ↓	0 to Pr <b>00.021</b> → 20 (1/10 <sup>e</sup> bar)

When Pr **00.022** Restart Mode is set to 1, the pump will only restart if pressure feedback is below the threshold set in Pr **00.013**.

<b>00.014</b> <b>(18.013)</b>	<b>Regulation Hysteresis</b>
Read-Write ↓	0 to 1000 % → 10 %

This parameter sets the hysteresis which is added to the pressure reference to determine the overpressure and under-pressure threshold (%).

For example, if pressure reference = 2.5 bars and Pr **00.014** is set to 10, then overpressure threshold will be 2.75 bars et under-pressure threshold will be 2.25 bars.

<b>00.015</b> <b>(18.015)</b>	<b>Overpressure Delay</b>
Read-Write ↓	0 to 1000 s → 25 s

This parameter sets the delay before stopping the pump.

<b>00.016</b> <b>(18.014)</b>	<b>Pump-off Condition Threshold</b>
Read-Write ↓	0 to 30000 (1/10 <sup>e</sup> bar) → 15 (1/10 <sup>e</sup> bar)

Sets the pressure threshold which generates the trip "External Trip 3" when the pump is considered in pump-off condition.

<b>00.017</b> <b>(18.018)</b>	<b>Minimum Speed</b>
Read-Write ↓	0 to 100 % → 80 %

This parameter sets the minimum running frequency of the pump as a percentage of maximum frequency Pr **00.002**.

For example, if Pr **00.017** = 80 %, the minimum frequency will be 40 Hz by default.

<b>00.018</b> <b>(01.022)</b>	<b>Manual Frequency</b>
Read-Write ↓	± VM_SPEED_FREQ_REF Hz → 50 Hz

This parameter sets the frequency when manual mode and numerical reference are selected for frequency regulation (terminal 10 closed), analog/numerical reference select Pr **00.023** = 0.

<b>00.019</b> <b>(14.010)</b>	<b>PID Proportional Gain</b>
Read-Write ↓	0.000 to 4.000 → 1.000

This is the proportional gain applied to the PID error.

<b>00.020</b> <b>(14.011)</b>	<b>PID Integral Gain</b>
Read-Write ↓	0.000 to 4.000 → 0.500

This is the integral gain applied to the PID error.

<b>00.021</b> <b>(18.023)</b>	<b>Maximum Value of the Pressure</b>
Read-Write ↓	0 to 30000 (1/10 <sup>e</sup> bar) → 100 (1/10 <sup>e</sup> bar)

This parameter sets the maximum pressure value.

<b>00.022</b> <b>(18.039)</b>	<b>Restart Mode</b>
Read-Write ↓	0 or 1 → 1

This parameter allows 2 levels of threshold to automatically restart the pump.

If Pr **00.022** = 1, the pump restarts only if pressure feedback is below the threshold set in Pr **00.013**.

If Pr **00.022** = 0, the pump restarts only if pressure feedback is below the under-pressure threshold set with the hysteresis Pr **00.014** (this threshold automatically adjusts depending of the signal level).

<b>00.023</b> <b>(18.037)</b>	<b>Analog/Numerical Reference Select</b>
Read-Write ↓	0 or 1 → 1

If numerical pressure reference is needed instead of an analog one, set Pr **00.023** to 0 and the required pressure value in Pr **00.012**.

**NOTE**

If needed, two numerical pressure references 1 and 2 can be used and selected by Pr **18.036**. If Pr **18.036** is set to 0, this is Pr **00.012** Numerical pressure reference 1 which is selected and if it is set to 1, this is Pr **18.021** Numerical pressure reference 2 which is selected.

<b>00.024</b> <b>(18.016)</b>	<b>Number of Back-up Pumps</b>
Read-Write ↓	0 to 3 → 0

This parameter sets the number of back-up pumps of the application. In the case there is one back-up pump only (Pr **00.024** = 1), DIO1 output is pre-configured as an output to start the back-up pump when needed.

<b>00.025</b> <b>(05.042)</b>	<b>Reverse Output Phase Sequence</b>		
Read-Write	↑	0 or 1	→ 0

After the rotation direction test (performed in manual mode), if the direction is not correct, set Pr **00.025** to 1.

<b>00.026</b> <b>(08.022)</b>	<b>Pump-off condition delay</b>		
Read-Write	↑	0 to 1000s	→ 10s

This parameter defines the delay before which the drive trips on "External trip 3". This trip is generated when the pressure is equal or below the Pump-off condition threshold Pr **00.016**.

<b>00.027</b> <b>(07.007)</b>	<b>ADI1 Mode</b>		
Read-Write	↑	See table below	→ 4-20mA Trp

The table below gives all the possible input modes.

Value	Mode	Function
-6	4-20mA Stop	4-20mA or 20-4 mA signal with stop on current loss <sup>(1)</sup>
-5	20-4mA Stop	
-4	4-20mA Low	4-20mA or 20-4 mA signal with switching to equivalent of 4mA input current on current loss <sup>(1)</sup>
-3	20-4mA Low	
-2	4-20mA Hold	4-20mA or 20-4 mA signal with hold at level before loss on current loss <sup>(1)</sup>
-1	20-4mA Hold	
0	0-20mA	0-20mA or 20-0mA signal
1	20-0mA	
2	4-20mA Trp	4-20mA or 20-4 mA signal with 'An Input 1 or 2 Loss' trip on current loss <sup>(1)</sup>
3	20-4mA Trp	
4	4-20mA	4-20mA or 20-4 mA signal with no action on current loss <sup>(1)</sup>
5	20-4mA	
6	Voltage	Voltage signal
7	Digital	Digital input

<sup>(1)</sup> Current loss: the current is below 3mA.

<b>00.028</b> <b>(20.029)</b>	<b>Pump Program Version 1</b>		
Read-Only	↑	± 31 bits	→ -

Shows the pump program version 1.

<b>00.029</b> <b>(20.030)</b>	<b>Pump Program Version 2</b>		
Read-Only	↑	± 31 bits	→ -

Shows the pump program version 2.









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