List of main parameters (see the manual for the complete list)**:**

D - DISPLAY menu

Code	Description	(unit of measure)
d-000	Output frequency	(0.1 Hz)
d-001	Reference frequency	(0.1 Hz)
d-002	Output current (rms)	(0.1 A)
d-003	Output voltage (rms)	(1 V)

S - START-UP menu Basic drive start-up menu.

PARAMETER	Description	ALIAS
S-150	Nominal motor current	p-040
S-151	Pairs of motor poles	p-041
S-152	Plated motor **cosϕ** value	p-042
S-153	Motor stator resistance (ohm)	p-043
S-401	Automatic boost on/off (1=on)	p-122
S-450	Slip compensation	p-100
S-451	Compensation time constant	p-101

I - INTERFACE menu Drive digital/analog input/output settings menu.

PARAMETER	Descrizione		DEFAULT
I-000	Configure inputs IN 1	[#]	1 RUN
I-001	Configure inputs IN 2	[#]	3 Ext Fault
I-002	Configure inputs IN 3	[#]	2 REVERSE
I-003	Configure inputs IN 4	[#]	7 Freq. Sel 1
I-100	Configure outputs OUT 1	[# #]	1 Alarm state
I-200	Configure input AN1	[# # #]	1 Volt 0/+10
I-201	Analog input Offset		0
I-202	Analog input Gain		1
I-203	Analog input Min. value		0

F - FREQ& RAMP menu Multi-speed and ramp settings menu.

Code	Description
f-100 /f-116	Digital frequencies
f-117	Jogging frequencies

P - PARAMETER menu Drive functioning parameter settings menu.

PARAMETER	Description
P-001	Logic: If = 0, Run and Reverse digital inputs are 'Run' and 'Reverse' If = 1, Run and Reverse digital inputs are 'Run forward' and 'Run back'
P-002	Reverse enable (if = 1, reverse enabled)
P-003	Safety: 0 = OFF; RUN active at Level 1; 1=ON, RUN active at signal high
P-004	Stop mode: 0 = to ramp; 1 = by inertia
P-046	Nominal motor slip
P-100	Slip compensation [%]
P-101	Slip compensation time constant [s]
P-220	Enable Link DC control: optimises deceleration, preventing over-voltage alarm; 0 = Disabled, 1 = PI limiter, 2 = Ramp freeze
P-380	Number of autoreset attempts: (with 5 second pause)
P-400	External fault control mode: 0 = always detected, Autoreset No; 1 = detected only in RUN mode, Autoreset No; 2 = always detected, Autoreset Yes; 3 = detected only in RUN mode, Autoreset Yes

[#] Digital inputs
IN1 [I-000], IN2 [I-001], IN3 [I-002], IN4 [I-003]

I-xxx Value	Action performed by digital input (when active)	
0	None	Not active
1	RUN	RUN command to enable drive
2	Reverse	Reverse Reverse speed command
3	EF NO	EF NO External fault (active low)
4	EF NC	EF NC External fault (active high)
5	Alarm Reset	Alarm reset Alarm reset command
6	Jog	Jog Jog frequency enable command: F-116
7	Freq Sel 1	Freq.Sel 1 Binary selection of multispeed function
13	Enable NO	Enable NO Drive enable (active low)
14	Enable NC	Enable NC Drive enable (active high)
26	Fast Stop	Quick stop Quick stop [ramp time = F-206]

[# #] Digital output
OUT 1 [I-100]

I-xxx Valore	Action performed by digital input (when active)	
0	Driver Ready	Inverter ready for start
1	Alarm State	Positive alarm signalling logic
2	Not in Alarm	Negative alarm signalling logic
3	Motor Running	Active direction command (Fwd or Rev)
4	Motor Stopped	Active direction command and frequency = 0 Hz
5	REV Rotation	Reverse rotation
6	Steady State	Motor at speed
7	Ramping	RampingMotor ramping
9	Trq>Thr	Output torque greater than value set in P-241
10	Current Lim	Current limit exceeded in ramp or at speed

[# # #] Analog input
AN IN 1 [I-200]

I-xxx Valore	Analog signal configuration	
1	Without JP5	Voltage 0/+ 10V
1	With JP5	Current 0 - 20 mA
2	With JP5	Current 4 - 20 mA

Note:

Alarms

OC	Over Current, Check the load and the ramp
SHC	SHortCircuit, disconnect the motor wire
OU	Over Voltage, check the ramp
UU	Under Voltage, check the power supply
PHI	Input PHase Loss, check the wire and the voltage supply
OHS	Over Temperature, check the fan
For the other allarm code please refer to the user's manual	

Introduction

DSA series digital inverters are designed for use with three phase asynchronous motors from 0.25 kW to 0.75 kW, 230 V.
Basic inverter programming can be achieved using just the 'S' parameters of the STARTUP menu. Other menus provide all necessary parameters to customise the inverter for specific applications. Refer to the manual for a complete description of these menus and parameters.

Warning

Electrical equipment can be hazardous to personal safety. It is essential to be fully acquainted with the operating instructions and controls of electrical equipment before attempting to operate it.

Equipment must only be used by technical personnel who are qualified to do so, who are fully acquainted with the standards for installing and operating equipment in compliance with all applicable safety standards, and who are able to fully understand all safety-related warnings.

Capacitors inside the equipment operate at dangerously high voltages. **Always wait at least 5 minutes after the equipment has been switched off before performing any work on it.** Dangerous voltages may be present at the power terminals even with the motor stopped. These are terminals U, V, W, L1, L2.

Under certain control program conditions, the machine can re-start automatically after a power failure.

There are no user serviceable components inside the equipment. Only the terminal cover must be removed during installation.

Technical specifications

	Input voltage	Inverter power	Nominal output current	Current absorbed per phase	Motor power	Inverter consumption
		Kva	A	A	kW	W
DSA 2M 002	220V -15% 240V +10% 50-60 Hz single phase	0,7	1,7	3,0	0,25	20
DSA 2M 004		1,0	2,2	4,5	0,37	25
DSA 2M 005		1,3	3,0	6,0	0,55	35
DSA 2M 008		1,7	3,9	8,0	0,75	45
DSA 2M 008		2,3	5,5	11	1,1	50

EMC

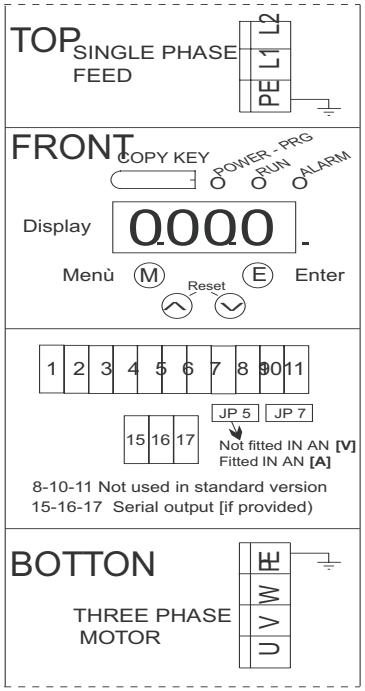
DSA series inverters are fitted with an internal EMC filter (EN 55011 Cl. A) as standard. DSA Cl. B internal filter can be fitted as an optional.

This data sheet provides a quick guide to the installation and operation of DVS inverters. For advanced functions and for maximum safety, always refer to the complete manual, available on request.

sw. 0B.08-XX.00

CONNECTION DIAGRAMS

POWER AND CONTROL TERMINALS



SINGLE PHASE FEED
Single phase 50 Hz/60 Hz +/- 5%
220 V (-15%) - 240 V (+10%)

Function Led's
Yellow
ON= Inverter power
Flashing=Programmini mode

Green
RUN command enabled and active

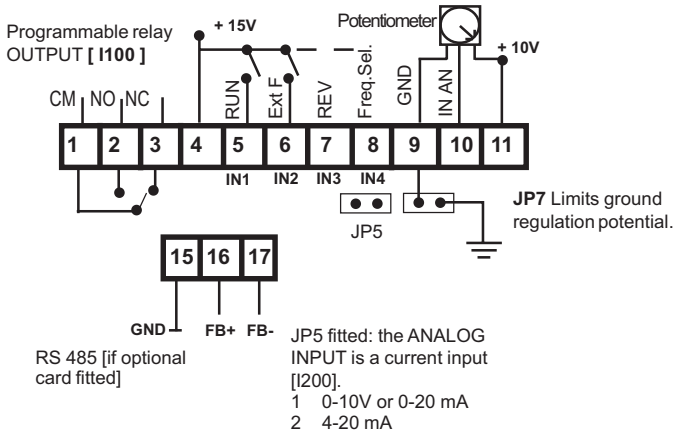
Red
Inverter allarm state

Control terminal

THREE PHASE MOTOR

FIT JP5 FOR USE WITH CURRENT ANALOG INPUT.

Control terminal



CONTROL CONNECTIONS

TERMINAL	N.	FUNCTION		MAX
REL-CM	1	Relè [I-100] (1)Alarm	Common	230 Vac 0.2 A 30Vdc 1A
REL-NO	2		Normally open	
REL-NC	3		Normally closed	
+15 V	4	+15V Potential		15V +/- 5% 300mA
IN1	5	Digital input 1	-000 (1)RUN	7mA @ 15V PNP logic
IN2	6	Digital input 2	-001 (3)EF	
IN3	7	Digital input 3	-002 (2)REV	
IN4	8	Digital input 4	I-003 (7)SFreq.	
GND	9	0 V potential for analog input		Analog input
ANIN1	10	Programmable analog input 1 I-002 =1		Voltage Ri=20kOhm
+10 V	11	+10V Potential		Current Ri=500Ohm
JP5		Converts Voltage input (J5 not fitted) to Current input (J5 fitted)		
JP7		Limits potential of earth terminals		
GND-U	15	Reference ground		RS 485
FB +	16	Serial line + (optional)		
FB -	17	Serial line + (optional)		

PARAMETRS MENU

Use the keyboard to access the parameters. Press M to display the desired menu. Use the arrow ⇑, ⇑ up and arrow down keys to select the code of the parameter whose value you wish to display, then press E to display that value.

- **d-xxx** Read only parameters display menu
- **S-xxx** Basic inverter parameters setting menu
- **II-xxx** Programmable inputs and outputs setting menu
- **ff-xxx** References and ramps setting menu
- **P-xxx** Inverter functioning parameters setting menu
- A-**xxx** PID block parameters setting menu
- C-**xxx** Function execution menu (for functions like parameter saving and inverter auto-calibration)

NOTE ! Menù S, START-UP, groups together the parameters and functions necessary for quick and easy start-up of the inverter and the controlled motor. All the parameters in the STARTUP menu are duplicated in other menus. Changes to any parameter in the STARTUP menu automatically change the same parameter in the other menu.

EDITING PARAMETERS

Let us assume that we have powered the inverter on and that we wish to change the acceleration ramp value F-201 from 5 (factory default value) to 10 seconds.

On power-up the display reads out 000. Press **M** repeatedly to display menu **F** (F-000); Use the arrow ⇑ ⇑up and arrow down keys to select code 201(F-201). Press **E**. The value of the parameter f-201 (AccTime1) is displayed. If the PRG LED is steadily lit, the parameter value can be changed. Press the arrow up ⇑ key until the display reads out 10. Press E to enter the new value.

ϕ ϕ This changes the active value for the acceleration ramp but does not save it (the yellow LED flashes).

Press **M** to display **C**. Use the arrow ⇑ ⇑up and arrow down keys to select the code C-000 ,. Press **E** to confirm your choice. The display reads out off . If the PRG LED is steadily lit, the value can be saved. Use the arrow ⇑ up key to enable the function. The display reads out Do. Press E to confirm. The display reads out **done** (value saved).

STARTUP

For the equipment to operate in safe conditions it must be installed and started up by suitably qualified personnel in compliance with all relevant safety standards applicable to high current and high voltage electrical equipment.

Parameter settings

Check the following parameters before starting up the inverter:

S - START-UP menu Basic drive start-up menu.

PARA METER	Description	ALIAS	DEFAULT
S-000	Mains voltage (V)	p-020	220
S-001	Mains frequency (Hz)	p-021	50
S-100	Maximum output voltage (V)	p-061	220
S-101	Base frequency (Hz)	p-062	50
S-200	START & STOP command source (1= terminals) [*]	p-000	1
S-201	Maximum analog reference frequency	f-020	50
S-202	Reference channel source [**]	f-050	3
S-203	Digital reference frequency	f-100	0
S-300	Ramp-up time	f-201	5
S-301	Ramp-down time	f-202	5
S-400	Manual boost	p-120	0
S-900	Stator resistance measure command	C-100	off
S-901	Parameter save command	C-000	off

[*] S-200 =1 control from terminals
S-200 =2,3,4 reserved for serial line control

[**] S-202 Source of speed reference
S-202 =3 reference from digital frequency = **S-203**
S-202 =1 reference from analog input [Vedi I-200]

Starting

1) Connect a potentiometer (minimum resistance 4.7 kOhm) for the speed reference (terminals 9, 10, 11).
2) Connect two contacts for the Run and Reverse commands closing on +15V (terminals 4 and 5 for Run, 4 and 7 for Reverse).
3) Close the Run contacts to start the motor. The motor starts and follows the set ramp to the set frequency (default F-201=5 = 5 seconds).

Stopping

The motor can be stopped in two ways:
1. By de-activating the Run command. The motor stops with the factory default deceleration ramp (F.202 = 5 seconds from max. frequency to 0 Hz).
2. Setting the speed reference potentiometer to 0 for manual control over motor stopping.

Warning! If the motor is stopped in this way it remains live even when not rotating.

If the motor fails to run

If the motor fails to start after the Run command, first make sure that the connections specified above have been made correctly, then check that the factory default parameters are suitable for the specifications of the motor.

USING THE PROGRAMMING KEY

Transferring parameters from the inverter to the key
· Insert the key into the socket above the display
· Use the keyboard to select the C-041 parameter, press ⇑ arrow up, then Enter.
The display reads out " done" for 2 seconds to confirm data transfer.

Transferring parameters from the key to the inverter
· Insert the key into the socket above the display
· Use the keyboard to select the C-040 , parameter, press ⇑ arrow up, then Enter.

The display reads out " done" for 2 seconds to confirm data transfer.