

Product description

Type : MSP- FAST CURRENT CONTROLLER

Berlin , 10.03.2000

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A) General Information

The MSP drive is a fast 4 quadrant current controller for use with electronic DC permanent magnet (trapeze) motors . The drives employ the well known Pulse Wide Modulated (PWM) system for accurate control of motor torque and operate with an efficiency better then 98%. The system is designed to stand alone in a customers cabinet in one or multi axis way. The output stage requires a DC BUS voltage of between 30 and 45 (85) VDC. The control electronics drive their power from an auxiliary 24 V DC supply.

The MSP drive includes the following parts:

- 3 phase power stage to drive a trapeze motor
- current amplifier and current sense
- start up , PWM , Hall sensor and protection/ error logic
- power supply +/- 15 and 5 V (from 24VDC level)
- ballast (Bleeder) system

The set value is an analogue voltage of +/- 10 V (differential input)

B) Motor types

The MSP amplifier can drive any type of electronic DC permanent magnet (trapeze) motors, especially Mavilor™- types. In any case we are able to adapt the motor with a PLA , which can be placed on a socket.

C) CNC or Computer Controller

Any control that provides an analogue (10 V) output is able to work with this drive. The very short response (delay) time is granting a good result and will give you a high dynamic solution.

Technical Specs

1 Mechanics

dimensions
weight (without heat sink)
mounting
connector system
EMC
Vibration and shock

2 Power stage

DC input voltage
rated voltage
rated current
peak current
required inductance
chopper frequency
frequency in motor windings
powerstage protection

Fuse F 2

3 Braking system

switch-on voltage
switch-off voltage
rated power
peak power
max. power control

4 Electronic Supply

DC input voltage
power consumption
Fuse F1

5 Controller Type

set value
input resistance
current monitor

bandwidth
signal delay

Control Signals

drive healthy signal

enable

LED display

green LED H4 "dark"
yellow LED H3 "dark"

operating temperature
storage temperature

MSP 0308

225 x 95 x 40
300 g (190 g)
heat sink
AMP connector
tested
tested

24-45 V (max. 48 V)
35 V
7 A
7 A
0,74 mH (min.)
12 kHz
24 kHz
over voltage/over current

8 A

50 V +/-0,3
adjusted
8 W
350 W
yes

24 V +/- 10 %
ca. 130 mA
1 A

PI current controller

analogue +/- 10V
> 50 K Ohm
1 V = 1,25 A

≥ 3 kHz
≤ 100 µs

open-collector optocoupling

+ 5 V

green and yellow LED on = drive is OK

over current/voltage or insufficient internal electronic voltage
motor temperature to high or Hall system failed

0.....45 °C
-10.....+60 °C

Possible Technical Specs

175 x 90 x 30

in accordance to customers request
AMP connector

12-85 V
24,48 or 65-75 V
1-10A
10-20 A

8-20 kHz
16-40 kHz
over temperature
over voltage/over current
2-10 A

30-90 V
adjusted
8W (or external 50 W)
700 W
yes

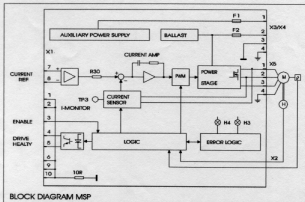
24 V +/- 10 %
ca. 130 mA
1 A

PI current controller
speed controller (option print)
analogue
10 - 50 K Ohm
10 V = 1a max

≥ 3 kHz
≤ 100 µs

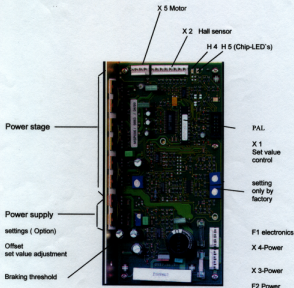
open-collector optocoupling

+ 5 V (+ 24 V) positive logic



PIN	Connector	Function	Remark
	X1	Control-signals	
1/2		GND	
3		Enable	+ 5 V
4		O.K.	
5/6		GND	
7		I (+)	Current input command
8		I (-)	Current input command
9/10		GND	
	X2	Motor Hall Sensor	
1		Hall 1	
2		Hall 2	
3		Hall 3	
4		+ 5 V	Hall supply
6/7/8		GND	Signal and supply
	X3 & X4	Power input	
1		+ 24 V	X3/X4 parallel
2		+ Ucc	electronic supply
3		0V	Power
4		PE	common for power and electronic
	X 5	Motor (Power)	
1		Phase 1	
2		Phase 2	
3		Phase 3	
4		PE	

Components Location





MAVILOR MOTORS S.A.

Date: 5/10/98

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CHARACTERISTICS	SYMBOL	UNITS	BT-55/A2
MAX SPEED	n	R.P.M.	12000
STALL TORQUE	M _s	Nm	0,7
STALL CURRENT	I _s	A	8,73
PEAK TORQUE	M _j	Nm	2,8
TORQUE-WEIGHT RATIO	T _w	Nm/Kg	0,48
EMF CONSTANT	K _e	Vs/rad	0,08
TORQUE CONSTANT	K _t	Nm/A	0,08
RELUCTANCE TORQUE	T _r	Nm	<0,02
WINDING RESISTANCE	R	Ω	0,57
WINDING INDUCTANCE	L	mH	0,74
ROTOR INERTIA	J	Kgm ² 10 ⁻⁴	0,015
MECHANICAL TIME CONSTANT	T _m	ms	1,32
ELECTRICAL TIME CONSTANT	T _e	ms	1,31
THERMAL TIME CONSTANT	T _{th}	min	9
THERMAL RESISTANCE	R _{th}	C/W	4,4
MASS	M	Kg	1,37
RADIAL LOAD	F _r	N	250
AXIAL LOAD	F _a	N	100
INSULATION			CLASS-F
PROTECTION			IP-65

All characteristics at 25°C ambient temperature.

