DIGITAL SERVO

TYPE MSDC

Fertigung
elektronischer
Servokomponenten

General view
CAN-Bus interface
RS 232
CE approval
High dynamic, high band width
High efficiency power stage
Fast current controller
Full protection mode
Mono block system
Limit switch
Brake control
Emergency stop

M-MESANOR
S-SERVO Amplifier
D-DIGITAL
C-CAN-Bus-Interface

Digital 4 Q - Servo amplifier for brushless DC Servo motors (Trapeze)

Basis Models MSDC

Type	I_{max} (A)	I_N (A)	V_{rated} (V AC)	V_{min} (V AC)	V_{max} (V AC)	Fan	Brakingsystem
MSDC 1204	8	4	90	45	100	no	built in
MSDC 1206	12	6	90	45	100	no	built in
MSDC 1208	16	8	90	45	100	no	built in
MSDC 1210	20	10	90	45	100	no	built in
MSDC 2404	8	4	177	65	195	no	built in
MSDC 2406	12	6	177	65	195	no	built in
MSDC 2408	16	8	177	65	195	no	built in
MSDC 2410	20	10	177	65	195	yes	built in

Operation Modes

- Position control / Speed control / Current control via CAN-Bus

Technical Specifications MSDC

Power stage

DC BUS intern U_E	125/250 V DC
Output voltage U_A	120/240 V
Over voltage	159/320 V DC
Braking on	155/307 V DC
Braking off	147/297 V DC

Connection to the main	via transformer (2 separate windings)
Power stage	IGBT-Single-Transistor
PWM chopper frequency	8 kHz
power stage protection	over current over voltage over temperature powerstage and motor short circuit, short to ground

Speed controller - digital

Set value	CAN-Bus
Speed sensor	Encoder
Parameter set up	CAN-Bus
Controller type	PI
Speed control range	1:1000
static error	300-3000 (6000) rpm ± 0,5 %
for Encoder with 1000 Imp/r	3-300 rpm ± 1,5 %
Sample time	500 µs

Position controller - digital

Set value	CAN-Bus
Position feed back	Encoder
Encodertype	5 V A,/A ; B,/B ; Z,/Z (diff. line driver)
Resolution	500-2048 Imp./r
Sample time	1 ms

Current controller - analogous

Controller type	PI
Current limit 1	I_{max} Peak current
Current limit 2	I_{eff} rms current
Band width	≥1 kHz

CAN Protocol - Interface

CAN	ISO/DIS 11898 , max . 1 MBit/s
Protocol	INFRANOR/ client dedicated/open
Service channel	Service data objects (SDO), transfer of data without real time demand (setup)
Process channel	Process data objects (PDO)-dynamic transfer of real time data
Cycle time	1-20 ms
Setup interface	RS 232 - PC Set up software
Parameter saving	EEPROM non volatile

General protection

RMS Current limit	I rms Disable drive or I_A limitation
Motor over temperature ϑ_M	Disable drive
Sensor error	Disable drive
EEPROM-Error	Disable drive
CAN-Bus-Error	Disable drive
Processor error	Disable drive

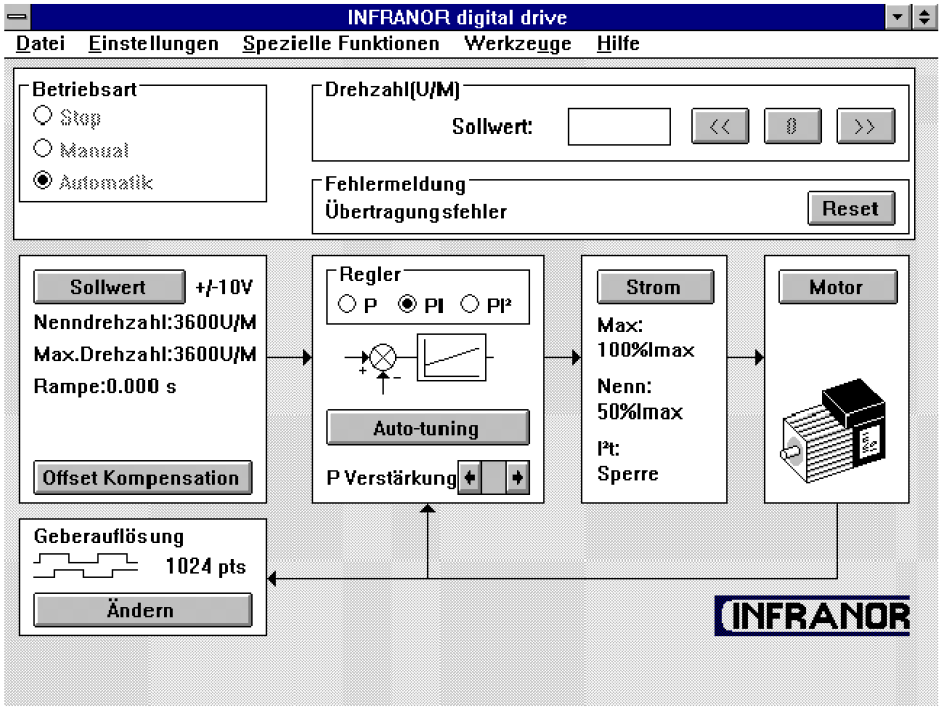
General

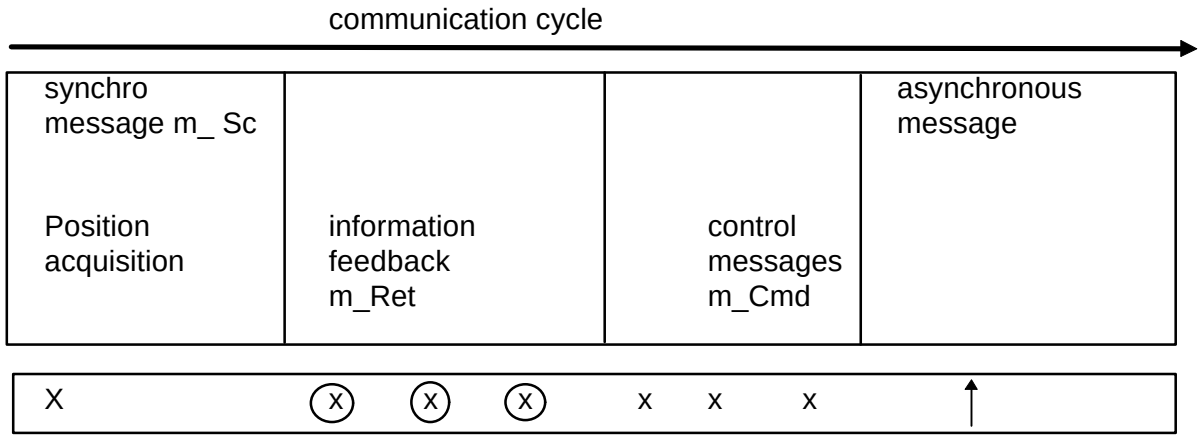
Operating temperature	0...45 °C
Storage temperature	-10 to + 60 °C
Protection	IP 20
Cooling	air convection or fan
Humidity	65 % relative humidity max.
Isolation group	C VDE 0110
weight	280-380 g
Dimension	220x58(83)x204 mm
Position	upright
Drive healthy signal	potential free relay contact 100 V, 20 mA
Brake control	potential free relay contact 100 V, 20 mA
Options	SSI-Encoder interface Resolver interface
Motortype	brushless and brush DC Motors AC Motors with permanent Magnets

Operation

Parameter setting and diagnosis via	RS 232
Parameter setting via	CAN-Bus
Transfer of reference and monitor values via	CAN-Bus

Example: screen shoot of the setup software





Terminal description MSDC

X1 Drive + Control

Type : D-Sub 25-pole male

PIN	Function	Remark	PIN	Function	Remark
1	Limit switch (+)	0/+15...24 V	13	Reset	0V In
2	n.c.		14	Limit switch (-)	0/+15...24 V In
3	n.c.		15	GND	0V
4	n.c.		16	Brake control	100 V, max. 20 mA
5	n.c.		17	Brake control	100 V, max. 20 mA
6	n.c.		18	Drive o.k.	100 V, max. 20 mA
7	n.c.		19	Drive o.k.	100 V, max. 20 mA
8	n.c.		20	Enable	0/+15...24 V In
9	n.c.		21	+15V	max. 10 mA Out
10	Reference switch	0/+15...24 V	22	-15V	max. 10 mA Out
11	0V/GND	GND	23	0V/GND	GND
12	Emergency stop	0/+15...24 V	24,25	0V/GND	GND

X2 Motor + Encoder

Type: D-Sub 25 pole female

PIN	Function	Remark	PIN	Function	Remark
1	Z	RS 422 In	14	/Z	RS 422 In
2	A	RS 422 In	15	/A	RS 422 In
3	B	RS 422 In	16	/B	RS 422 In
4	0V/GND	GND	17	0V/GND	GND
5	+5 V max. 150mA (Pin 5+18)	Out	18	+ 5V max. 150mA (Pin 5+18)	Out
6	Limit switch (+)	0/+15...24 V In	19	Hallsensor 3	+15 V (+5 V) In
7	Limit switch (-)	0/+15...24V In	20	Hallsensor 2	+15 V (+5 V) In
8	Hallsensor 1	+15V (+5V) In	21	-15V max. 10mA	Out
9	+15V max. 10mA(9+10)	Out	22	Mot.-Temp.Sensor	In
10	+15V max. 10mA(9+10)	Out	23	n.c.	
11	n.c.		24	0V/GND	GND
12	n.c.		25	n.c.	
13	n.c.				

X14 Motor + Power

Type: 14-pole male (Type Weidmüller)

PIN	Function	Remark	PIN	Function	Remark
1	n.c.		8	Mot.-Temp.-Sensor	in
2	- 15V max. 10 mA	out	9	Motorphase 1	note Motortype
3	+ 15V max. 10 mA	out	10	Motorphase 2	note Motortype
4	Limit switch (+)	0/ +15...24 V in	11	Motorphase 3	note Motortype
5	Limit switch (-)	0/ +15...24 V in	12	AC L1	Trafo in
6	0V/ GND	PE	13	AC L2	Trafo in
7	0V/GND	Mot.-Temp.Sensor	14	AC L3	Trafo in

Front connectors

PIN	Diagnoses RS 232 Mini-DIN 8 (8 pole)	CAN 1 (in) 9 pole D-Sub-female	CAN 2 (out) 9 pole D-Sub-male
1	n.c.	n.c.	n.c.
2	n.c.	CAN_L	CAN_L
3	TxD	GND	GND
4	GND	n.c.	n.c.
5	RxD	Shield	Shield
6	n.c.	n.c.	n.c.
7	n.c.	CAN_H	CAN_H
8	n.c.	n.c.	n.c.
9	----------	n.c.	n.c.

Application

- All pick and place equipments
- Single and multi axis machinery
- Test equipments
- Feeding systems
- Wrapping machinery
- Robotics
- Textile machinery
- Spotlight-trace control systems
- Food machinery
- Medical equipments

Your Advantage

- *wide range of application*
- *easy matching and set up*
- *high reliability*
- *first class support*
- *good price/performance ratio*

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ATTENTION : PRELIMINARY - Subject to change