

Servo amplifier

mcDSA-F15-SSI

Article number: 1515688

Certification:



Picture similar

Technical data

Supply voltages	
Electronic supply voltage Ue*2	9..30 V
Electronic current consumption@ Ue=24V*3	typ. 90 mA
Power supply voltage Up*4	9..60 V
Output current	
Max. output current	225 A
Continuous output current (certified UL/CE)*5 @Up ≤ 24V	77 A
@Up ≤ 60V	65 A
Continuous output current (not certified)*6 @Up ≤ 24V	85 A
@Up ≤ 48V	70 A
PWM	
PWM frequency	32 kHz
Commutation type	Field Oriented Control
Mechanical	
Size LxWxH	111 x 100 x 56 mm
Weight	451 g
Environment	
Protection class	IP20
Ambient temperature (operation)*7 (certified UL/CE)	-40..40 °C
Ambient temperature (operation)*7 (not certified)	-40..70 °C
Ambient temperature (storage)	-40..85 °C
Rel. humidity (non-condensing)	5..90 %
CAN bus	
Protocol	DS301
Device profile	DS402
Max. baudrate	1 Mbit/s
CAN specification	2.0B
Galvanically isolated	yes
RS485	
Type	2-Wire EIA-485
Signals	DATA,/DATA,CLK,/CLK
Functional safety	
Safety function refer safety manual	Safe Torque Off (STO)
Safety Integrity Level (SIL)	up to SIL 3
Performance Level (PL)	up to PL e

Sensor supply (Encoder/Hall)	
Output voltage	5 V
Max. output current	0.2 A
Sensor supply (Encoder/SSI)	
Output voltage	5 V
Max. output current	0.2 A
Incremental encoder	
Type	incremental
Signals	A,/A,B,/B,Inx,/Inx
Max. frequency (per channel)	500 kHz
Input voltage (24V tolerant)	0..5 V
Signal type	differential, open collector, single ended
Hall sensors	
Signals	H1,/H1,H2,/H2,H3,/H3
Max. frequency (per channel)	10 kHz
Input voltage (24V tolerant)	0..5 V
Signal type	differential, open collector, single ended
STO channels (STO-A..B)	
Low voltage	0..5 V
High voltage	8..30 V
Digital inputs	
Number - digital inputs	6 (Din0..5)
Low voltage	0..5 V
High voltage	8..30 V
Notice	Din5 parallel with Dout2*8
Digital outputs	
Number	3 (Dout0..2)
Continuous output current (certified UL/CE)	1 A
Continuous output current (not certified)	1.5 A
Load Dout0..1	resistive, low inductive
Load Dout2	resistive, inductive
Output voltage	Electronic supply voltage Ue
Signal type	positive switching
Notice	Dout2 parallel with Din5
Analog inputs	
Number	2 (Ain0..1)
Signal type - Ain0	+/- 10 V, 12 Bit, differential
Signal type - Ain1	+/- 10 V, 12 Bit, single ended

*1 The certified performance data must be observed (see UL Instruction Note and Safety Manual (CE))

*2 No reverse polarity protection, the destruction limit is at overvoltage of $\geq 33V$ or short-term peak voltage of $37V < 1s$

*3 power amplifier switched off, 5V output (sensor supply) is free, STO active

*4 No reverse polarity protection, the destruction limit is at overvoltage of $\geq 70V$

*5 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (SVPWM), ambient temperature 40 °C, I/O's and 5V output active, RMS current:

77 A $\rightarrow$ 54 Aeff, 65 A $\rightarrow$ 45 Aeff

*6 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (SVPWM), ambient temperature 40 °C, I/O's and 5V output free, RMS current: 85

A $\rightarrow$ 60 Aeff, 70 A $\rightarrow$ 50 Aeff

no guarantee, since value is determined empirical, please consider the application notes to determine the continuous current

*7 Hex-Switches should be not used at $T < -25^{\circ}C$ (setting of node ID only possible by firmware parameters)

*8 Input voltage must not exceed Electronic supply voltage Ue

Additional technical data are available in mcManual.



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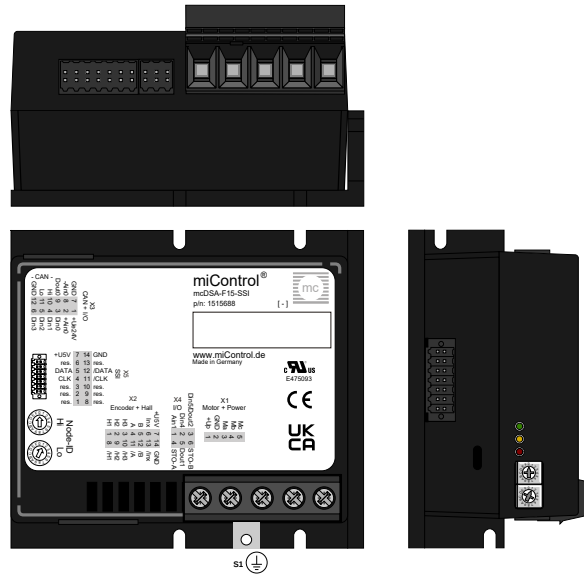
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Scheme



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Terminal assignment

X1 Motor		
1	+Up	Power supply voltage
2	GND	Ground for power supply voltage
3	Ma	Motor phase A
4	Mb	Motor phase B
5	Mc	Motor phase C
X2 Hall and inc. encoder		
1	H1	Hall sensor 1
2	H2	Hall sensor 2
3	H3	Hall sensor 3
4	A	Inc. encoder, A channel
5	B	Inc. encoder, B channel
6	Inx	Inc. encoder, index channel
7	+U5V	5V output voltage for sensor supply Sensors: encoder, hall
8	/H1	Hall sensor 1 inverted
9	/H2	Hall sensor 2 inverted
10	/H3	Hall sensor 3 inverted
11	/A	Inc. encoder, A channel inverted
12	/B	Inc. encoder, B channel inverted
13	/Inx	Inc. encoder, index channel inverted
14	GND	Ground for sensor supply Notice: don't connect with system GND
X3 I/O's and CAN		
1	+Ue24V	Electronic supply voltage
2	+Ain0	Analog input 0, plus
3	Din0	Digital input 0
4	Din1	Digital input 1
5	Din2	Digital input 2
6	Din3	Digital input 3
7	GND	Ground for electronic supply voltage
8	-Ain0	Analog input 0, minus
9	Dout0	Digital output 0
10	CAN Hi	CAN High
11	CAN Lo	CAN Low
12	CAN GND	CAN Ground

X4 I/O's		
1	Ain1	Analog input 1
2	Din4	Digital input 4
3	Din5/Dout2	Digital input 5 / Digital output 2
4	STO-A	STO channel A
5	Dout1	Digital output 1
6	STO-B	STO channel B
X5 Encoder		
1	res.	Reserved
2	res.	Reserved
3	res.	Reserved
4	CLK	SSI clk
5	DATA	SSI data
6	res.	Reserved
7	+U5V	5V output voltage for sensor supply Sensors: encoder, SSI
8	res.	Reserved
9	res.	Reserved
10	res.	Reserved
11	/CLK	/SSI clk
12	/DATA	/SSI data
13	res.	Reserved
14	GND	Ground for sensor supply Notice: don't connect with system GND
S1 Screw (M4)		
-	FE	Functional earth