

Servo amplifier

mcDSA-F15

Article number: 1512842

Certification:   *1
E475093



Picture similar

Technical data

Supply voltages		Sensor supply (Encoder/Hall)	
Electronic supply voltage Ue* ²	9..30 V	Output voltage	5 V
Electronic current consumption@ Ue=24V* ³	typ. 70 mA	Max. output current	0.2 A
Power supply voltage Up* ⁴	9..60 V	Incremental encoder	
Output current		Type	incremental
Max. output current	225 A	Signals	A,/A,B,/B,I _{NX} ,/I _{NX}
Continuous output current (certified UL/CE)* ⁵ @Up ≤ 24V	77 A	Max. frequency (per channel)	500 kHz
@Up ≤ 60V	65 A	Input voltage (24V tolerant)	0..5 V
Continuous output current (not certified)* ⁶ @Up ≤ 24V	85 A	Signal type	differential, open collector, single ended
@Up ≤ 48V	70 A	Hall sensors	
PWM		Signals	H1,/H1,H2,/H2,H3,/H3
PWM frequency	32 kHz	Max. frequency (per channel)	10 kHz
Commutation type	Field Oriented Control	Input voltage (24V tolerant)	0..5 V
Mechanical		Signal type	differential, open collector, single ended
Size LxWxH	111 x 100 x 39 mm	Digital inputs	
Weight	451 g	Number - digital inputs	6 (Din0..5)
Environment		Low voltage	0..5 V
Protection class	IP20	High voltage	8..30 V
Ambient temperature (operation)* ⁷ (certified UL/CE)	-40..40 °C	Notice	Din5 parallel with Dout2* ⁸
Ambient temperature (operation)* ⁷ (not certified)	-40..70 °C	STO channels (STO-A..B)	
Ambient temperature (storage)	-40..85 °C	Low voltage	0..5 V
Rel. humidity (non-condensing)	5..90 %	High voltage	8..30 V
CAN bus		Digital outputs	
Protocol	DS301	Number	3 (Dout0..2)
Device profile	DS402	Continuous output current (certified UL/CE)	1 A
Max. baudrate	1 Mbit/s	Continuous output current (not certified)	1.5 A
CAN specification	2.0B	Load Dout0..1	resistive, low inductive
Galvanically isolated	yes	Load Dout2	resistive, inductive
Functional safety		Output voltage	Electronic supply voltage Ue
Safety function refer safety manual	Safe Torque Off (STO)	Signal type	positive switching
Safety Integrity Level (SIL)	up to SIL 3	Notice	Dout2 parallel with Din5
Performance Level (PL)	up to PL e	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 >= 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 >= 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 → 54 Aeff, 65 A → 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 → 60 Aeff, 70 A → 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°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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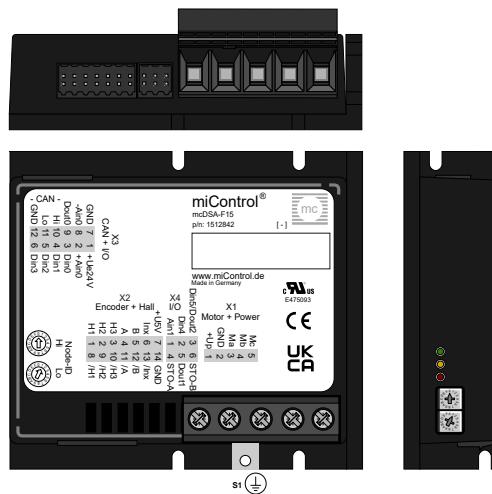
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Scheme



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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
S1	Screw (M4)	
-	FE	Functional earth