

# Servo amplifier

## mcDSA-E20

Article number: 1511097



Picture similar

### Technical data

| Absolute maximum rating (destruction limits)                                  |                               |
|---|-------------------------------|
| Power supply voltage $U_p$<br>no polarity reversal protection                 | 80 V                          |
| Continuous Electronic supply voltage $U_e$<br>no polarity reversal protection | 33 V                          |
| Short term peak voltage < 1s $U_e$<br>no polarity reversal protection         | 37 V                          |
| Power   |                               |
| Electronic supply voltage $U_e$   | 9..30 V                       |
| Electronic current consumption@ $U_e=24V^{*1}$                                | typ. 55 mA                    |
| Power supply voltage $U_p$  | 9..60 V                       |
| Max. output current   | 50 A                          |
| Continuous output current @ $U_p=24V^{*2}$                                    | 30 A                          |
| Continuous output current @ $U_p=48V^{*2}$                                    | 21 A                          |
| PWM   |                               |
| Output voltage  | 90% $U_p$                     |
| PWM frequency   | 25, 32 <sup>*3</sup> , 50 kHz |
| Mechanical  |                               |
| Size LxWxH  | 111 x 100 x 30 mm             |
| Weight  | 380 g                         |
| Environment   |                               |
| Protection class  | IP20                          |
| Ambient temperature (operation) <sup>*4</sup>                                 | -40..55 °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   | no                            |

| Sensor supply (Encoder/Hall) |   |
|------------------------------|---|
| 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,<br>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,<br>single ended |
| Digital inputs               |   |
| Number - digital inputs      | 4 (Din0..3)                                   |
| Low voltage                  | 0..5 V  |
| High voltage                 | 8..30 V                                       |
| Digital outputs              |   |
| Number                       | 1 (Dout0)                                     |
| Continuous output current    | 1.5 A   |
| Load                         | resistive, inductive                          |
| Output voltage               | Electronic supply voltage $U_e$               |
| Signal type                  | positive switching                            |
| Analog inputs                |   |
| Number                       | 1 (Ain0)                                      |
| Signal type                  | 0..10 V, 12 Bit, single ended                 |

\*1 power amplifier switched off, 5V output (sensor supply) is free

\*2 connector cable with max. possible cable cross-section, PWM frequency 25 kHz, ambient temperature 40 °C (t >40 °C derating), RMS current: 30 A → 24.5 Aeff, 21 A → 17.1 Aeff

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

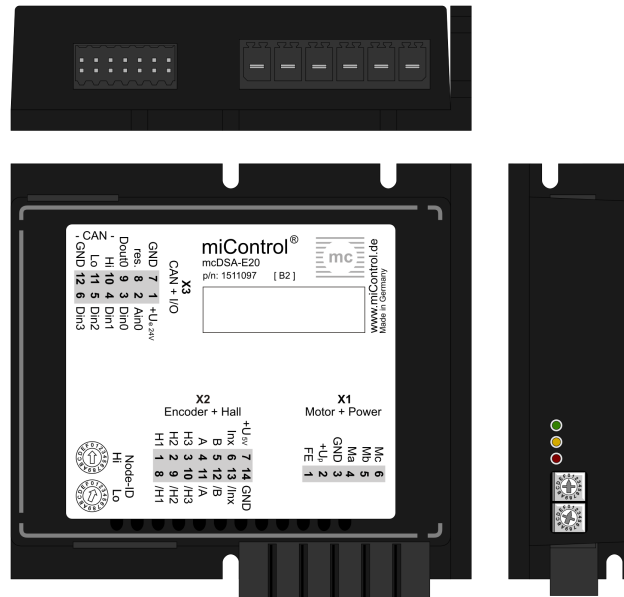
\*3 default value

\*4 Hex-Switches should be not used at T < -25°C (setting of node ID only possible by firmware parameters)

Additional technical data are available in mcManual.



Scheme



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Terminal assignment

| X1 Motor                 |         |   |
|--------------------------|---------|---|
| 1                        | FE      | Functional earth  |
| 2                        | +Up     | Power supply voltage  |
| 3                        | GND     | Ground for power supply voltage                                   |
| 4                        | Ma      | Motor phase A   |
| 5                        | Mb      | Motor phase B   |
| 6                        | 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<br>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<br>Notice: don't connect with system GND |
| X3 I/O's and CAN         |         |   |
| 1                        | +Ue24V  | Electronic supply voltage   |
| 2                        | Ain0    | Analog input 0  |
| 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                        | res.    | Reserved  |
| 9                        | Dout0   | Digital output 0  |
| 10                       | CAN Hi  | CAN High  |
| 11                       | CAN Lo  | CAN Low   |
| 12                       | CAN GND | CAN Ground  |