

# Servo amplifier

## mcDSA-E25XC

Article number: 1512840

Certification:



Picture similar

### Technical data

| Absolute maximum rating (destruction limits)                               |                       |
|--|-----------------------|
| Power supply voltage Up<br>no polarity reversal protection                 | 80 V                  |
| Continuous Electronic supply voltage Ue<br>no polarity reversal protection | 33 V                  |
| Short term peak voltage < 1s Ue<br>no polarity reversal protection         | 37 V                  |
| Power  |                       |
| Electronic supply voltage Ue   | 9..30 V               |
| Electronic current consumption@ Ue=24V*2                                   | typ. 70 mA            |
| Power supply voltage Up  | 9..60 V               |
| Max. output current  | 160 A                 |
| Continuous output current (certified UL/CE)*3<br>@Up=24V                   | 44 A                  |
| @Up=60V  | 40 A                  |
| Continuous output current (not certified)*4<br>@Up=24V                     | 65 A                  |
| with Heatsink (Art.No. 1511832)  | 75 A                  |
| Continuous output current (not certified)*4<br>@Up=48V                     | 55 A                  |
| with Heatsink (Art.No. 1511832)  | 65 A                  |
| PWM  |                       |
| Output voltage   | 100% Up               |
| PWM frequency  | 25, 32*5, 50 kHz      |
| Mechanical   |                       |
| Size LxWxH   | 111 x 100 x 39 mm     |
| Weight   | 414 g                 |
| Environment  |                       |
| Protection class   | IP20                  |
| Ambient temperature (operation) (certified UL/CE)*6                        | -40..55 °C            |
| Ambient temperature (operation) (not certified)*6                          | -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                   |
| Functional safety  |                       |
| Safety function<br>refer safety manual                                     | Safe Torque Off (STO) |
| Safety Integrity Level (SIL)   | up to SIL 3           |
| Performance Level (PL)   | up to PL e            |

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

\*2 power amplifier switched off, 5V output (sensor supply) is free, STO active

\*3 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (asymmetrical), ambient temperature 55 °C, I/O's and 5V output active, RMS current: 44 A → 36 Aeff, 40 A → 33 Aeff

\*4 connector cable with max. possible cable cross-section, PWM frequency 32 kHz (asymmetrical), ambient temperature 40 °C, I/O's and 5V output free, RMS current: 55 A → 45 Aeff, 65 A → 53 Aeff, 75 A → 61 Aeff

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

\*5 default value

\*6 Hex-Switches should be not used at T &lt; -25°C (setting of node ID only possible by firmware parameters)

\*7 Input voltage must not exceed Electronic supply voltage Ue

Additional technical data are available in mcManual.



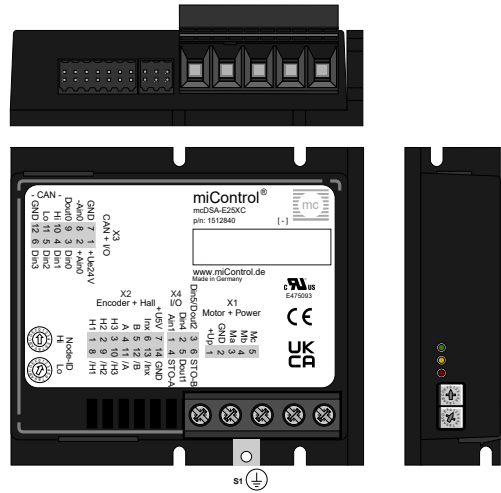
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| Sensor supply (Encoder/Hall)                |   |
|---|---|
| Output voltage                              | 5 V   |
| Max. output current                         | 0.2 A   |
| Incremental encoder                         |   |
| Type  | incremental                                   |
| 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                     | 6 (Din0..5)                                   |
| Low voltage                                 | 0..5 V  |
| High voltage                                | 8..30 V                                       |
| Notice                                      | Din5 parallel with Dout2*7                    |
| STO channels (ST0-A..B)                     |   |
| Low voltage                                 | 0..5 V  |
| High voltage                                | 8..30 V                                       |
| Digital outputs                             |   |
| Number                                      | 3 (Dout0..2)                                  |
| Continuous output current (certified UL/CE) | 1.5 A   |
| Load  | 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                |

## 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<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, 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                   |