

## Servo amplifier

## mcDSA-E47-EtherCAT-HC

Article number: 1511155



Picture similar

## Technical data

| Supply voltages                           |                  |
|-------------------------------------------|------------------|
| Electronic supply voltage Ue*1            | 9..30 V          |
| Electronic current consumption @ Ue=24V*2 | typ. 60 mA       |
| Power supply voltage Up*3                 | 9..60 V          |
| Output current                            |                  |
| Max. output current                       | 50 A             |
| Continuous output current @ Up=24V*4      | 12 A             |
| Continuous output current @ Up=48V*4      | 12 A             |
| PWM                                       |                  |
| Output voltage                            | 100% Up          |
| PWM frequency                             | 25, 32*5, 50 kHz |
| Mechanical                                |                  |
| Size LxWxH                                | 110 x 61 x 77 mm |
| Weight                                    | 310 g            |
| Environment                               |                  |
| Protection class                          | IP20             |
| Ambient temperature (operation)           | -25..70 °C       |
| Ambient temperature (storage)             | -25..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               |

| EtherCAT                  |                                   |
|---------------------------|-----------------------------------|
| Type                      | EtherCAT Slave                    |
| Physical layer            | 100 Base-Tx EtherCAT              |
| Bus controller            | ET1100                            |
| Max. baudrate             | 100 Mbit/s                        |
| Number of ports           | 2xRJ45 (In,Out)                   |
| Protocol                  | CoE (CANopen over EtherCAT)       |
| Sensor supply (Encoder)   |                                   |
| Output voltage            | 5 V                               |
| Max. output current       | 0.2 A                             |
| Encoder                   |                                   |
| Type                      | sin / cos                         |
| Signals                   | +Sin,-Sin,+Cos,-Cos               |
| Resolution                | 13 bit per sine period            |
| Input voltage             | 1 V peak-peak, differential       |
| Signal type               | sine/cosine, analog, differential |
| Digital inputs            |                                   |
| Number - digital inputs   | 7 (Din0..6)                       |
| Low voltage               | 0..5 V                            |
| High voltage              | 8..30 V                           |
| Digital outputs           |                                   |
| Number                    | 2 (Dout0..1)                      |
| Continuous output current | 1.5 A                             |
| Load                      | resistive, inductive              |
| Output voltage            | Electronic supply voltage Ue      |
| Signal type               | positive switching                |
| Analog inputs             |                                   |
| Number                    | 2 (Ain0..1)                       |
| Signal type - Ain0        | +/- 10 V, 12 Bit, differential    |
| Signal type - Ain1        | +/- 10 V, 12 Bit, single ended    |

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

\*2 power amplifier switched off, 5V output (sensor supply) is free, bus not connected

\*3 No reverse polarity protection, the destruction limit is at overvoltage of  $\geq 80V$ \*4 connector cable with max. possible cable cross-section, PWM frequency 32 kHz, ambient temperature 40 °C ( $t > 40$  °C derating), RMS current: 12 A  $\rightarrow$  9.8 Aeff  
no guarantee, since value is determined empirical, please consider the application notes to determine the continuous current

\*5 default value

Additional technical data are available in mcManual.



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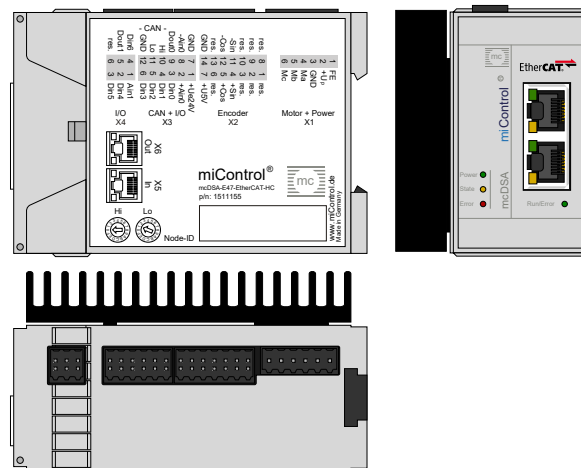
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## Scheme



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## Terminal assignment

| X1 Motor         |         |                                                                   |
|------------------|---------|-------------------------------------------------------------------|
| 1                | 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 Encoder       |         |                                                                   |
| 1                | res.    | Reserved                                                          |
| 2                | res.    | Reserved                                                          |
| 3                | res.    | Reserved                                                          |
| 4                | +Sin    | Encoder, plus sine signal                                         |
| 5                | +Cos    | Encoder, plus cosine signal                                       |
| 6                | res.    | Reserved                                                          |
| 7                | +U5V    | 5V output voltage for sensor supply<br>Sensors: encoder           |
| 8                | res.    | Reserved                                                          |
| 9                | res.    | Reserved                                                          |
| 10               | res.    | Reserved                                                          |
| 11               | -Sin    | Encoder, minus sine signal                                        |
| 12               | -Cos    | Encoder, minus cosine signal                                      |
| 13               | res.    | Reserved                                                          |
| 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  | Digital input 5  |
| 4                      | Din6  | Digital input 6  |
| 5                      | Dout1 | Digital output 1 |
| 6                      | res.  | Reserved         |
| X5 EtherCAT - In port  |       |                  |
| -                      | In    | In               |
| X6 EtherCAT - Out port |       |                  |
| -                      | Out   | Out              |