# ENGEL ElektroMotoren AG

Drive Controller

# EDC-B45-HC

| 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*¹ | typ. 40 mA |
| Power supply voltage Up | 9..60 V |
| Max. output current | 50 A |
| Continuous output current @ Up=24V*² | 12 A |
| Continuous output current @ Up=48V*² | 12 A |
| **PWM** | |
| Output voltage | 100% Up |
| PWM frequency | 12.5, 25*³ kHz |
| **Mechanical** | |
| Size LxWxH | 110 x 39 x 77 mm |
| Weight | 310 g |
| **Environment** | |
| Protection class | IP20 |
| Ambient temperature (operation) | -40..70 °C |
| Ambient temperature (storage) | -40..85 °C |
| Rel. humidity (non-condensing) | 5..90 % |
| **CAN bus** | |
| Protocol | DS301 |
| Max. baudrate | 1 Mbit/s |
| CAN specification | 2.0B |
| Galvanically isolated | no |
| **Sensor supply (Hall)** | |
| Output voltage | 5 V |
| Max. output current | 0.2 A |
| **Hall sensors** | |
| Signals | H1,/H1,H2,/H2,H3,/H3 |
| Max. freqency (per channel) | 10 kHz |
| Input voltage (24V tolerant) | 0..5 V |
| Signal type | open collector, differential,<br>5V pull up intern 920 Ohm |
| **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 Ue |
| Signal type | positive switching |
| **Analog inputs** | |
| Number | 1 (Ain0) |
| Signal type | +/- 10 V, 12 Bit, single ended |


Picture similar

*¹ drive controller 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: 12 A → 9.8 Aeff no guarantee, since value is determined empirical, please consider the application notes to determine the continuous current
*³ default value

Additional technical data are available in edcManual.


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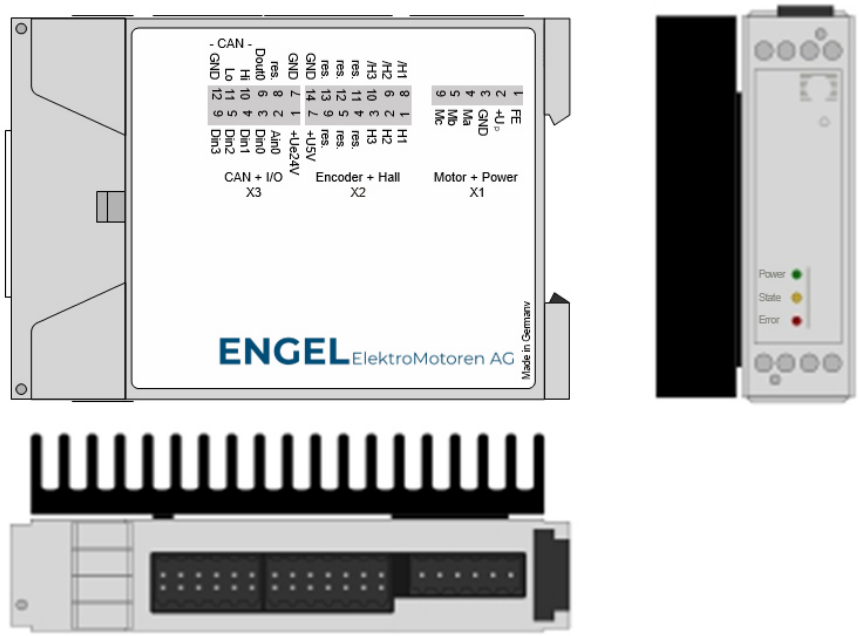
Scheme




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** | |
| 1 | H1 | Hall sensor 1 |
| 2 | H2 | Hall sensor 2 |
| 3 | H3 | Hall sensor 3 |
| 4 | res. | Reserved |
| 5 | res. | Reserved |
| 6 | res. | Reserved |
| 7 | +U5V | 5V output voltage for sensor supply<br>Sensors: hall |
| 8 | /H1 | Hall sensor 1 inverted |
| 9 | /H2 | Hall sensor 2 inverted |
| 10 | /H3 | Hall sensor 3 inverted |
| 11 | res. | Reserved |
| 12 | res. | Reserved |
| 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 |
| 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 |