

# Motion Controllers

V3.0, 4-Quadrant PWM  
with RS232, CANopen or EtherCAT interface

## MC 5010 S

| Values at 22°C                                |            | MC 5010 S                |      |
|---|------------|--------------------------|------|
| Power supply electronic                       | $U_P$      | 12 ... 50                | V DC |
| Power supply motor                            | $U_{mot}$  | 0 ... 50                 | V DC |
| PWM switching frequency                       | $f_{PWM}$  | 100                      | kHz  |
| Efficiency electronic                         | $\eta$     | 97                       | %    |
| Max. continuous output current                | $I_{cont}$ | 10                       | A    |
| Max. peak output current <sup>1)</sup>        | $I_{max}$  | 30                       | A    |
| Standby current for electronic (@ $U_P=24V$ ) | $I_{el}$   | RS / CO: 0,06 ET: 0,07   | A    |
| Operating temperature range                   |            | -40 ... +85              | °C   |
| Housing material                              |            | aluminium, powder-coated |      |
| Mass  |            | RS / CO: 230 ET: 270     | g    |

<sup>1)</sup> S2 mode for max. 3s

| Interfaces                            | MC 5010 S RS | MC 5010 S CO  | MC 5010 S ET |
|---------------------------------------|--------------|---------------|--------------|
| Configuration from Motion Manager 6.0 | RS232 / USB  | CANopen / USB | RS232 / USB  |
| Fieldbus                              | RS232        | CANopen       | EtherCAT     |

### Basic features

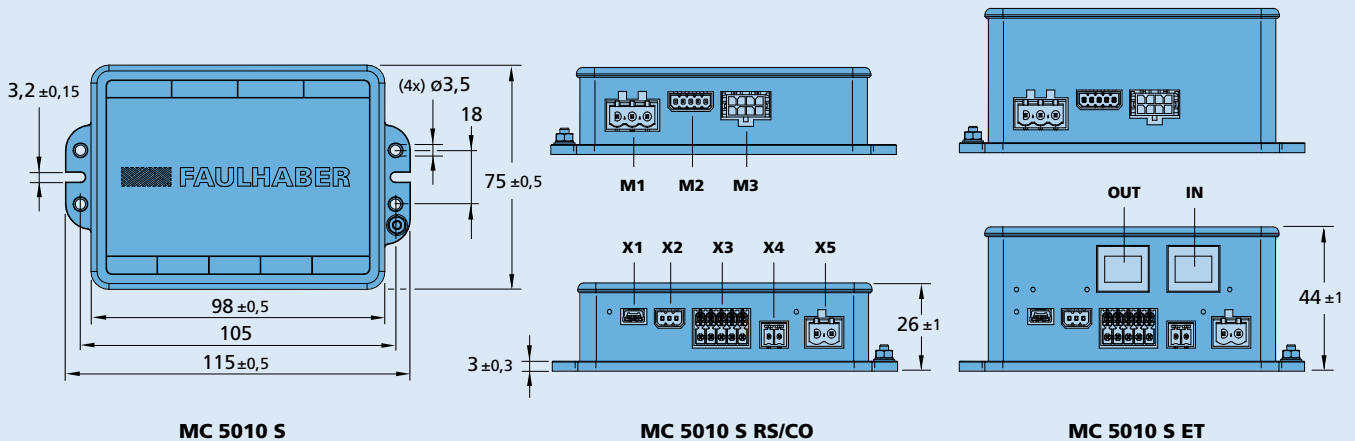
- Control of brushless, DC- and linear motors
- Supported sensor systems: absolute encoders (AES or SSI), incremental encoders (optical or magnetic), Hall sensors (digital or analog), tachometers
- Positioning resolution when using analog Hall sensors as position encoder: 4096 increments per revolution
- 3 digital inputs, 2 digital outputs, 2 analog inputs, flexible configuration
- Setpoint specification via fieldbus, quadrature signal, pulse and direction or analog inputs
- Optional stand-alone operation via application programs in all interface versions

### Range of functions

|  |   |
|--|---|
| Operating modes  | PP, PV, PT, CSP, CSV, CST and homing acc. to IEC 61800-7-201 or IEC 61800-7-301 as well as position-, speed- and torque control via analog setpoint or voltage controller |
| Speed range for brushless motors with number of pole pairs 1 | 0 min <sup>-1</sup> ... 30 000 min <sup>-1</sup> with sinusoidal commutation  |
| Application programs   | Max. 8 application programs (BASIC), one of which is an autostart function  |
| Additional functions   | Touch-probe input, connection of a second incremental encoder, control of a holding brake   |
| Indicator  | LEDs for displaying the operating state<br>Trace as recorder (scope function) or logger   |
| Motor types  | DC, BL- and linear motors   |

### Dimensional drawing

Scale reduced



### Options and connection information

Example product designation: **MC 5010 S RS**

| Option | Type                | Description  | Connection  |                         |  |   |
|--------|---------------------|--|---|-------------------------|--|---|
|        |                     |  | Name  | Function                | Input/Output   | Description   |
| 6419   | Encoder combination | Integrated terminating resistor for combination with absolute encoder AES-4096 L or AEMT-12/16 L | <b>X1</b>   | Configuration interface |  | USB   |
|        |                     |  | <b>X2</b>   | Fieldbus                |  | RS: RS232<br>CO: CANOpen  |
|        |                     |  | <b>X3</b>   | Input/Output            | DigIn1, DigIn2, DigIn3<br>DigOut1, DigOut2<br>AnIn1, AnIn2<br>U <sub>out</sub> / GND   | TTL or PLC level<br>max. 0,7A cont. current<br>± 10V against AGND<br>5V |
|        |                     |  | <b>X4</b>   | Electronic power supply |  |   |
|        |                     |  | <b>X5</b>   | Motor power supply      |  |   |
|        |                     |  | <b>M1</b>   | Motor phases            | A, B, C  |   |
|        |                     |  | <b>M2</b>   | Hall sensors            | A, B, C<br>U <sub>out</sub> / GND  | digital or analog<br>5V   |
|        |                     |  | <b>M3</b>   | Encoder                 | A, $\bar{A}$ , B, $\bar{B}$ , I, $\bar{I}$<br>EN, $\bar{EN}$ , CLOCK, $\bar{CLOCK}$ , DATA, $\bar{DATA}$<br>U <sub>out</sub> / GND | max. 5MHz<br>AES or SSI<br>5V   |
|        |                     |  | <b>IN</b>   | Fieldbus                |  | EtherCAT IN   |
|        |                     |  | <b>OUT</b>  | Fieldbus                |  | EtherCAT OUT  |
|        |                     |  | <b>Note:</b> For details on the connection assignment, see device manual for the MC 5010. |                         |  |   |

### Product combination

| DC-Motors   | Brushless DC-Motors   | Cables / Accessories  |
|---|---|---|
| 3242 ... CR<br>3257 ... CR<br>3272 ... CR<br>3863 ... CR<br>3890 ... CR | 2264 ... BP4<br>3242 ... BX4<br>3268 ... BX4<br>3274 ... BP4<br>3564 ... B<br>4490 ... B<br>4490 ... BS | <p>An extensive range of accessories is available for the products of the MC 5010 and MC 5005 controller series.</p> <p>Included here are connection cables for controller and motor supply, sensors and interfaces, connector sets for motor- and supply side as well as mechanical components for optional top hat rail mounting.</p> <p>To view our large range of accessory parts, please refer to the „Accessories“ chapter.</p> |