

DAMATROL MC100 is a digital single-loop unit controller which is used, for example, as PID controller, ratio controller or manual control station.

The controller's and process's operation is controlled and the control parameters are set through DAMATROL MC100's user interface.

The controller's I/O connections are made through a disconnectable I/O connector. The bus interface provided as a standard feature permits connection to a local control room or to higher-level systems, such as DAMATIC.

## Technical specifications

### Ambient requirements

- Operating temperature 0 to +50 °C
- Storage temperature -40 to +80 °C
- Relative humidity 0 to 80 %
- Vibration 1.3 mmpp, 5-14 Hz, 0.5 g, 14-150 Hz
- Mounting position Freely selectable.

### Enclosure class

- Panel-mounting enclosure IP40

### Dimensions

- Weight 1.7 kg
- Width x height x length  
72 x 144 x 220 mm  
(without display unit) 72 x 144 x 186 mm
- Mounting cut-out 68 x 138 mm  
(with mounting collar) 3" x 6" (US Std.)

### Power supply

- Supply voltage  
230 V (-15 %...+10 %) 50/60 Hz  
115 V (-15 %...+10 %) 50/60 Hz
- Power consumption max. 8 W
- Power failure characteristics  
Data support in memory
  - All data: typically 24 h (e.g. setpoint and controller output)
- Parameters and calibration: 10 y.

### I/O connections

- Analog inputs 2
- Analog outputs 1
- Binary inputs 2
- Binary outputs 2
- Transmitter supply connections 2
- Permissible wire cross-section max. 2.5 mm<sup>2</sup>
- Field signal connection technique:  
Multiterminal screw-terminal block

### Analog inputs

- Resolution 12 bit
- Accuracy 0.1 % F.S.
- Temperature error 0.06 % / 10 C F.S.
- Input resistance 250 Ω
- Attenuation 50 Hz/60 dB
- Grounding: Inputs have common ground potential
- Max. range 0...20.5 mA (freely selectable)  
(as voltage input) 0...5 V
- Max. voltage 30 V
- Filtering time constant 25 ms
- Impedance 250 Ω  
(as voltage input) 10 MΩ

### Analog outputs

- Resolution 12 bit
- Accuracy 0.15 % F.S.
- Temperature error 0.1 % / 10 C F.S.
- Load capacity 800 Ω
- Max. range 0...20.5 mA (freely selectable)

### Binary inputs

- Grounding: grounded input
- Switching device
  - Max. leakage current 2 mA
  - Min. current capacity 6 mA
  - Min. voltage capacity 28 V

### Binary outputs

- Type: Reed relay, make-contact
- Voltage max. 30 V
- Current max. 100 mA
- Load power max. 3 VA
- Isolation voltage min. 1000 VAC
- Max. switch resistance 0.2 Ω
- Expected life 200 million switchings  
(10 mA, 10 VDC, resistive load)

### Transmitter supply connections

- Current limitation 25 mA
- Mains voltage 230/115 VAC  
24 V (+10...-15%)



### Grounding

- Analog inputs and outputs:  
Common ground potential
- Binary inputs and outputs:  
Common ground potential
- Analog and binary ground:  
Connected together inside controller
- Guard wire connections 2 grounding screws (protective earth and sheaths of cables)

### Buses

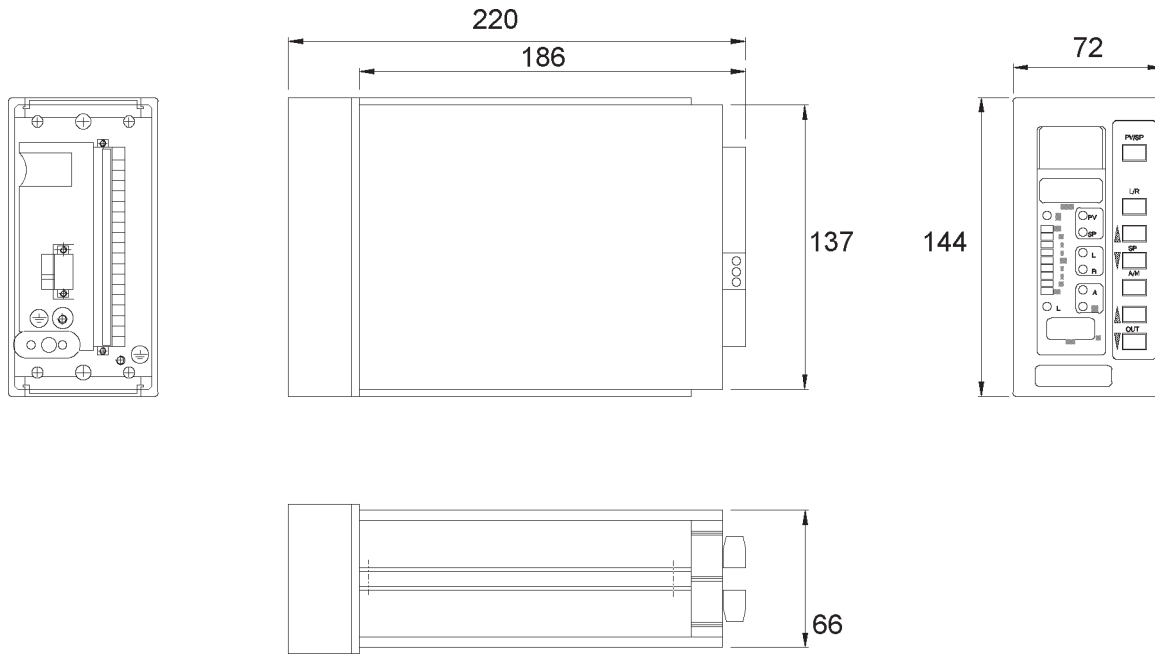
- Interfaces RS-232, RS-485
- Max. cable length 1200 m (RS-485), 15 m (RS-232)
- Baud rate 600...38400 baud
- Protocol:  
Modbus RTU (slave),  
DBUS (multidrop bus)
- Max. number of controllers per bus  
32 (Modbus) or 15 (DBUS)

### Control panel

- Digital displays 4- and 3-digit green 7-segment displays for measured process value, setpoint and controller output.
- LEDs 2 reds for alarm limits; 3 x 2 greens for indicating the PV/SP, L/R and A/M states; 9-LED green/yellow/red control deviation display
- Display brightness  
Adjustable (15 steps)
- Keypad 7 pushbutton keys

We reserve the right for technical changes without prior notice.

## DIMENSIONS



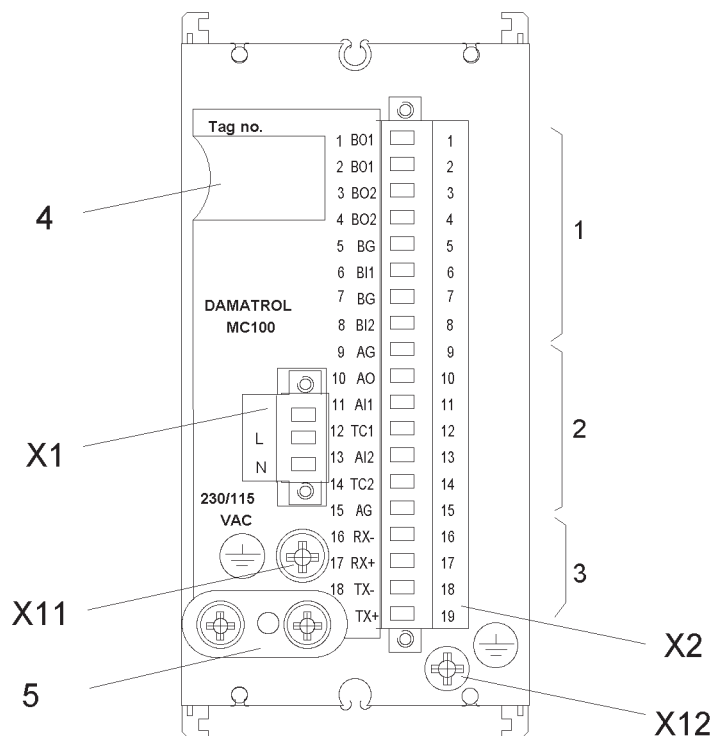
## Software

- Computing time 100 ms
- External precision of numbers 16 bit,  
Internal precision of numbers 24...40 bit
- PID controller
- KP (gain) 0.125 ... 24.0
- TI (integral action time) 1.1 s ... infinite
- TD (derivative action time) 0 ... 153.6 s
- Measured value and setpoint scale: High and low limit selectable -999 ... +9999.
- Measured value handling: Filtering, linearization, square root extraction, high and low limit alarms.
- Remote setpoint handling: Filtering, ratio, bias, high and low limits.
- Output handling: Filtering, interlocking, forced manual control, high and low limits.



MEETS THE COUNCIL OF THE EUROPEAN UNION DIRECTIVES 73/23/EEC FOR ELECTRICAL EQUIPMENT DESIGNED FOR USE WITHIN CERTAIN VOLTAGE LIMITS AND AMENDMENT 93/68/EEC AND 89/336/EEC FOR ELECTROMAGNETIC COMPATIBILITY REQUIREMENTS.

## CONNECTIONS



- |     |                         |   |                   |
|-----|-------------------------|---|-------------------|
| X1  | Mains power connector   | 1 | Binary I/Os       |
| X2  | I/O connector           | 2 | Analog I/Os       |
| X11 | Housing grounding screw | 3 | RS-485 interface  |
| X12 | Grounding screw         | 4 | Tag number pocket |
|     |                         | 5 | Cable clamp       |