

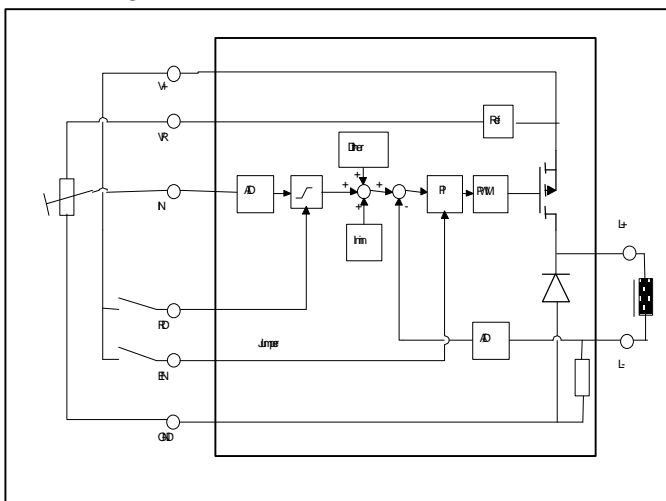


33 40303A00

**Digital current controller**  
for installation on mounting rails

Current controller designed to control proportional solenoids

## Block diagram



The digital current controller 33 40303A00 is designed to control proportional constant current solenoids. The core element of the current controller is an 8-bit microcontroller which, apart from the actual current control, is designed to perform menu-driven parameter setting functions. The adjustable control parameters include the setpoint input, setpoint dead range, initial current, maximum current, ramp up and down time, dither amplitude and dither frequency. The values of the above parameters can be easily entered by means of two buttons and will be displayed on an LCD display. This is done by selecting the parameter to be changed. Press the upper button to proceed to the next parameter or the lower button to select the previous parameter. By briefly pressing both buttons at the same time, the value of the selected parameter can be changed. Pressing the upper

button allows the value to be increased. Pressing the lower button will reduce the parameter value. By pressing both buttons at the same time once again, the selected value will be saved. After completion of this procedure, a different parameter can be selected. The setpoint signal can be set to one of the following 3 ranges: 0...5 V; 0...10 V; 0...20 mA. The controller is provided with a stabilized voltage output (VR). This output can be used to control the current controller by means of a potentiometer, such as a joystick of the 33 25004... series. **In order to activate the controller, a voltage of 4 ... 36 V has to be supplied to the ENABLE control input.** If no control signal is available, a jumper can be used to connect the V+ and EN terminals. By supplying 4 V ... 36 V voltage to the additional RD control input, the ramp generator can be disabled. The current controller is

## Technical data

Input voltage:	9...36 VDC
Residual ripple:	5%
Output current max.:	3.2 A
Setpoint signal (selectable range):	0...5 V; 0...10 V; 0...20 mA
Initial current (adjustable):	0...2.1 A
Maximum current (adjustable):	0...3.2 A
Linearity error	0°C...+50°C: $\leq \pm 2\%$
Ramp up time (adjustable):	0...10 s
Ramp down time (adjustable):	0...10 s
Dither amplitude (adjustable):	0...0.7 A
Dither frequency (stepwise selctable):	27...250 Hz
Stabilized voltage:	+5 VDC $\pm 5\%$ ; $I \leq 4\text{mA}$
Ambient temperature:	0°C...+50°C
Fuse protection:	5AT, 5 x 20 as per DIN 41571
Connection terminal:	8-pole plug-in screw
Cross section:	2.5 mm <sup>2</sup> fine-wire
Installation:	on 35 mm mounting rail as per EN 50022

equipped with a serial interface. The optional programming kit (3343603A00) allows the controller to be configured over the PC via the RS232 port. The current controller features a status LED which flashes at different frequencies to indicate the operating status:

- 1 Hz: normal operation
- 2 Hz: a minor error has occurred. The control operation is continued.
- 3 Hz: a major error has occurred. The control operation is interrupted (current 0 mA).

The space-saving plastic housing allows the current controller to be mounted on top hat rails inside the switch cabinet. The plug-in screw terminals ensure fast and easy installation.

**Protection type**  
as per EN 60529: IP00  
**Subject to design modifications without notice.**  
**Please observe operating instructions and ordering data!**

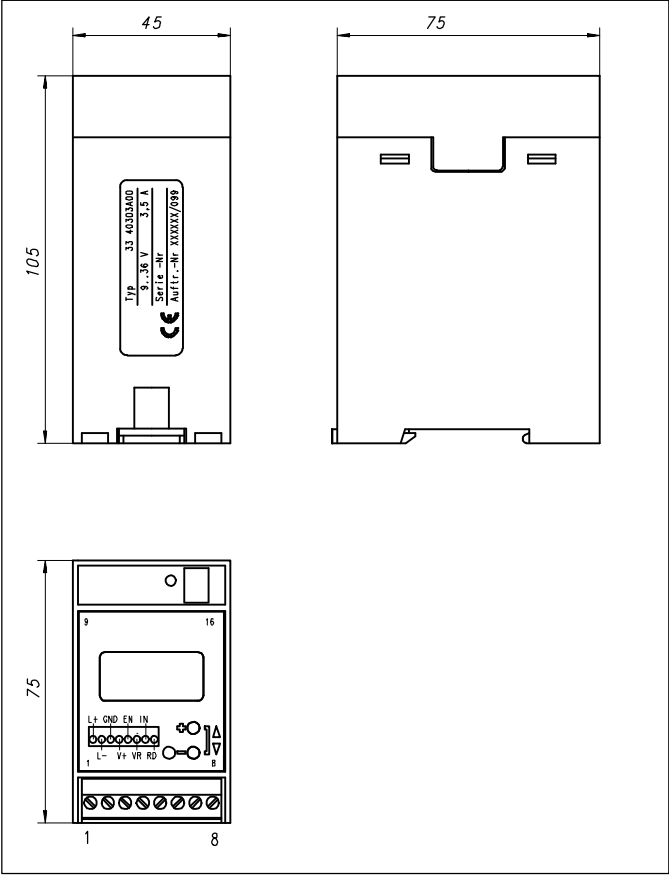
## CE

These devices meet the requirements of the EMC Directive 89/336/EEC. Compliance with the following standards is confirmed: EN 55011 (VDE 0875, part 11, 1992) Disturbance voltage, group 1, class A Disturbance radiation, group 1, class B EN 61000-4-2 (1995) Test severity level 1 The display quality of the LCD display may be temporarily affected. This will not entail any control deviations. EN 61000-4-3 (1995) Test severity level 3 EN 61000-4-4 (1995) Test severity level 3 EN 61000-4-5 (1995) Test severity level 3

The products are considered components in the sense of the Machine Directive 89/392/EEC and are not to be used until the machine in which they are to be incorporated is declared to conform to the requirements of the EC Directives.

33 40303A00

Dimensions (mm)



Terminal assignments

- |    |     |                     |
|----|-----|---------------------|
| 1: | L+  | Solenoid connection |
| 2: | L-  | Solenoid connection |
| 3: | GND | Ground              |
| 4: | V+  | Operating voltage   |
| 5: | EN  | Enable controller   |
| 6: | VR  | Stabilized voltage  |
| 7: | IN  | Setpoint            |
| 8: | RD  | Delete ramp         |

Proportional solenoids – Preferred types of solenoids for digital current controller

The following solenoids are recommended for use with the current controller at 24 V DC:

Type	Rated voltage U <sub>N</sub> [V]	Limit power P <sub>lim</sub> [W]	Limit current I <sub>lim</sub> [A]	Rated resistance R <sub>20</sub> [Ω]	Duty cycle [%]
45 85603C0D	12	20	1,9	3,66	100
45 85604C1D	12	21	2,45	2,33	100
45 85606D0D	12	33,8	3,2	2,15	100

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**Ordering example**    Digital current controller  
 33 40303A00  
  
 optional programming kit  
 for PC under W95/98  
 33 43603A00