EP250

Electronic potentiometer

Rev. 1, November 2010

ComAp

User guide

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Prague, Czech Republic

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Description

EP250 is a microprocessor controlled device with variable resistance at the output terminals. The value of output resistance is changed by contact inputs, and current value in percent is indicated by LED bargraph located on the front panel. The device is shipped in a plastic box equipped with DIN lock for mounting to the switchboard.

Features:

- Adjustable speed (change of R_{out} from 0% to 100%) 5s to 50s
- Adjustable init value of R_{out} from 0% to 100% with step 10%
- Output resistance (R_{out}) control by contact inputs INC and DEC, galvanic separated from the internal circuits of the device
- Special contact input for setting init value
- After power on, the init value is set automatically
- Output resistance can be controlled also manually by microbuttons on the front panel
- Current value of output resistance (in %) is indicated by LED bargraph on the front panel
- The nominal resistance can be simply changed using another resistor module RM250, which is accessible after removing the plastic box.

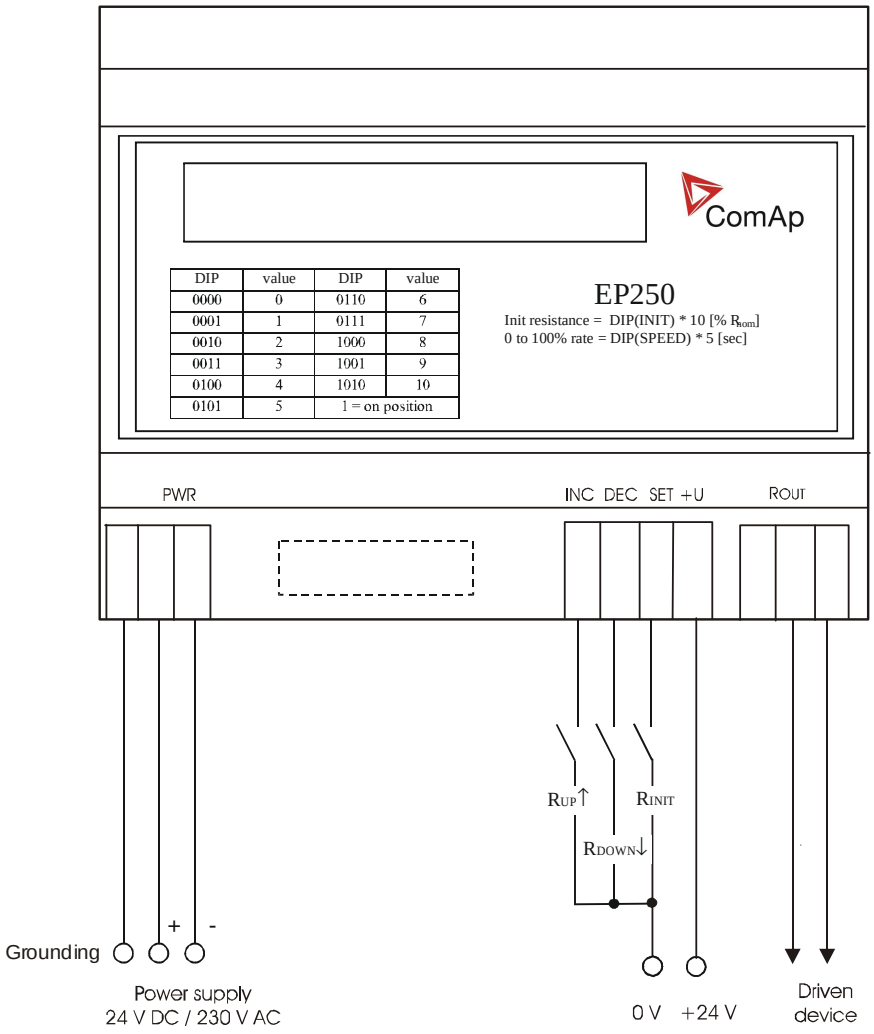
Usage

The device is designed for application in control and/or regulation systems, where the input to the controlled device is a **variable resistance** and the output from the controlling device are two binary (contact) signals – regulated value "higher" and "lower".
Typical applications are speed governors for combustion engines or voltage regulators for alternators.

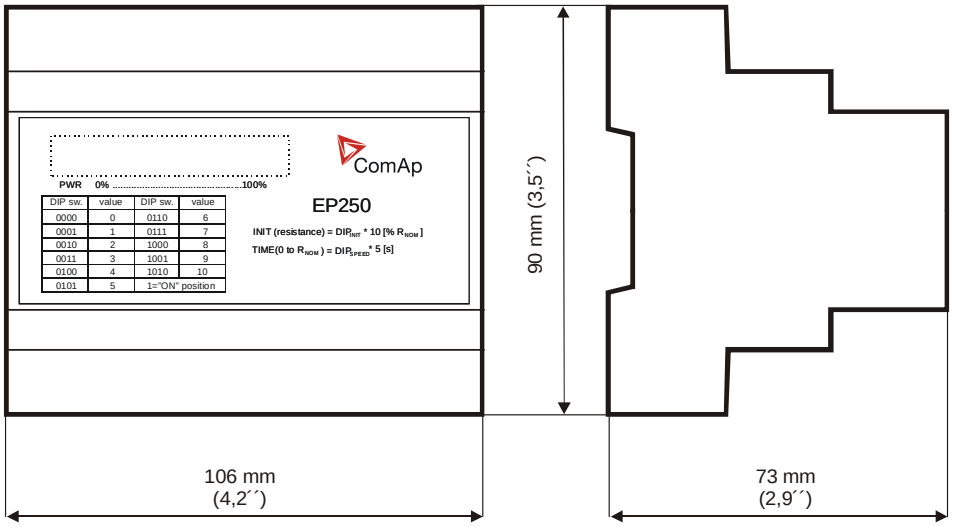
Technical data

Power supply:	EP250/230V – 230V AC, EP250/24V - 18-30V DC **Modules EP250/24V manufactured in 2010 and later have extended supply voltage range to 8-36VDC.**
Consumption:	2,4W/24V DC; 1,8VA/220V AC
Power supply for binary inputs:	18-30V DC **(8-36V, see note at the power supply voltage)**
Common terminal:	positive
Min. pulse length at bin. Inputs	5ms
Nominal resistance:	RM250 modules in range 120Ω-100kΩ in series 1-2-5-10
Output resistance step:	1/256 $R_{nominal}$
Change duration 0 - $R_{nominal}$:	adjustable 5-50s in step 5s
Max. load of output resistance:	min. 0,6W
Max. voltage on the output:	150V
Galvanic separation:	-power supply separated by transformer (230V version only) 4kV -inputs separated by optocouplers 2kV -output separated by relays 1kV
Degree of protection:	IP20
Operating temperature:	-10 to +50°C
Storage temperature:	-40 to +70°C
Dimensions (W x H x D)	106x90x73 mm

Wiring diagram



Note to the installation of RM250 module:
To change the module, remove the rear part of the plastic box and the printed circuit board.
The module is plugged in this board. When plugging a new one, check the proper orientation!
The pinched-off pin must be against to the blocked contact in the connector.



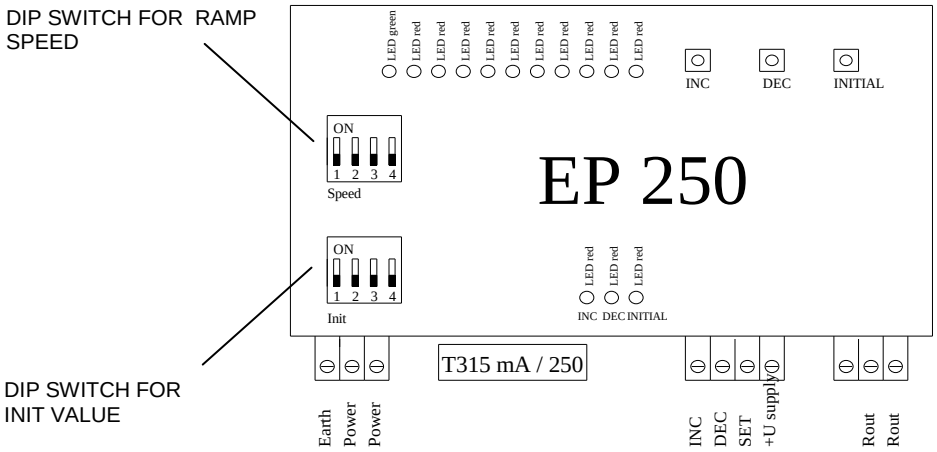
Ordering codes for RM modules:

RM250/120R	Nominal Resistance 120 Ω
RM250/250R	Nominal Resistance 250 Ω
RM250/500R	Nominal Resistance 500 Ω
RM250/1k	Nominal Resistance 1 kΩ
RM250/2k	Nominal Resistance 2 kΩ

RM250/5k	Nominal Resistance 5 kΩ
RM250/10k	Nominal Resistance 10 kΩ
RM250/20k	Nominal Resistance 20 kΩ
RM250/50k	Nominal Resistance 50 kΩ
RM250/100k	Nominal Resistance 100 kΩ

Ordering codes for EP250:

EP250/230 V	Power supply 230 V AC
EP250/24 V	Power supply 8-36 V DC



DIP sw.	Value	DIP sw.	Value
0000	0	0110	6
0001	1	0111	7
0010	2	1000	8
0011	3	1001	9
0100	4	1010	10
0101	5	1= "ON" position	

INIT (resistance) = DIP init * 10 (% Rnom)

TIME (0 to Rnom) = DIP speed * 5 (s)

1. Init value (start value) setting

Example : R = 5 KΩ (RM250/5k)

DIP sw.	Value	Rmax=5KOhm [+3%,-0%]	LED
0000	0	0	Green
0001	1	500	Green + 1 x red
0010	2	1000	Green + 2 x red
0010	3	1500	Green + 3 x red
0100	4	2000	Green + 4 x red
0101	5	2500	Green + 5 x red
0110	6	3000	Green + 6 x red
0111	7	3500	Green + 7 x red
1000	8	4000	Green + 8 x red
1001	9	4500	Green + 9 x red
1010	10	5000	Green + 10 x red

Notice: After setting **DIPswitch** push button „INIT“ or connect terminal „SET“ to 0 V or power supply switching off and on for **Init value** activation.

Calculation example:

R = 5 KΩ; DIP switch value 3

Calc.:	Rout/Rout	=	DIP init * 10 (% Rnom)	[Ohm]
		=	(3 * 10 * 5000) / 100	[Ohm]
		=	1500	[Ohm]

INC

Push button to increase R out.

DEC

Push button to decrease R out.