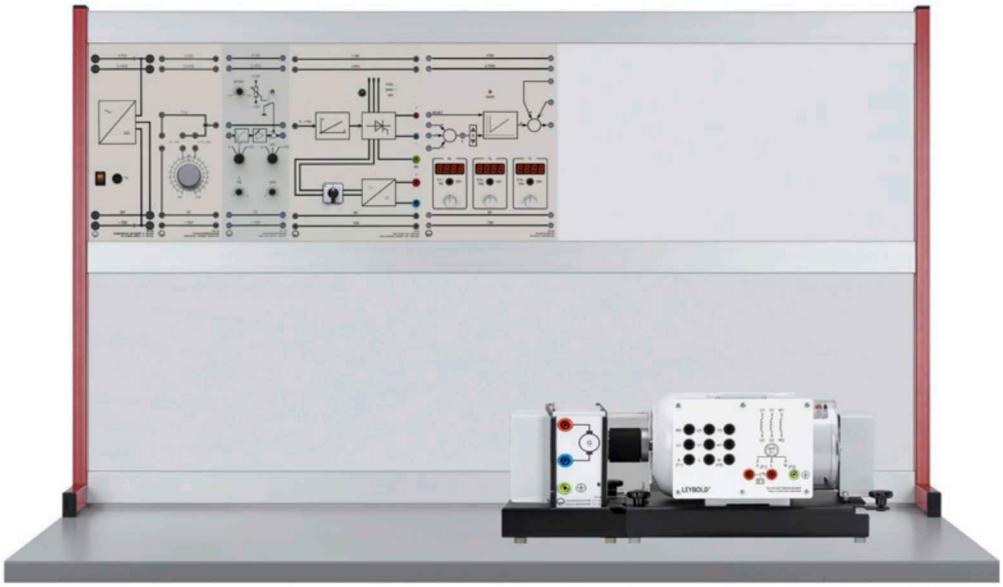
E6.4.1

INDUSTRIAL CONTROLLERS & CONTROLLED SYSTEMS

E6.4.1.2
Control of an
Industrial Machine 0.3



Control of an Industrial Machine 0.3 (E6.4.1.2)

Cat. No.	Description	E6.4.1.2
731 86	DC compound machine 0.3	1
734 02	Reference variable generator	1
734 19	Gain and offset adjust	1
734 22	Actuator 115...230 V/1 kW	1
734 064N	PID digital controller Net	1
775 755EN	LIT: E6.4.1.2 Control of IMA 300W	1*
726 09	Panel frame T130, two-level	1*
726 86	DC-Power Supply ± 15 V/3 A	1*
731 06	Coupling 0.3	1*
731 08	Coupling guard 0.3	1*
731 07	Shaft end guard 0.3	2*
731 09	Tacho generator 0.3	1*
524 016S2	Profi-CASSY Starter 2	1*
500 59	Safety bridging plugs, black, set of 10	2*
500 592	Safety bridging plugs with tap, black, set of 10	1*
500 644	Safety connecting lead, 100 cm, black	3*
500 604	Safety connecting lead, 10 cm, black	2*
500 640	Safety connecting lead, 100 cm, yellow/green	2*
500 641	Safety connecting lead, 100 cm, red	4*
500 642	Safety connecting lead, 100 cm, blue	5*
531 583	Multimeter METRAport 40 S	1*
	additionally required: PC with operating system Windows 7/8/10	

* additionally recommended

Control of an Industrial Machine 0.3 kW

An idling direct current motor loaded only by its own ventilator and bearing and brush friction is functioning as a technical controlled system. This establishes speed control in the first quadrant (active acceleration). Braking occurs passively via the ventilator and friction losses. In addition to the measurements, the process is simulated on the PC as well. A numerical optimisation of the controller is carried out in accordance with the ITAE criteria using the WinFACT LD Edition (734 491) software.

Topics

- Technical Controlled Systems
- Characteristic line for the drive engine
- Step response for an industrial machine
- Technical controller
- Controller tuning
- Determination of the controller parameters with PID Design Centre

Experiments are operated and evaluated with CASSY Lab 2 and WinFACT.