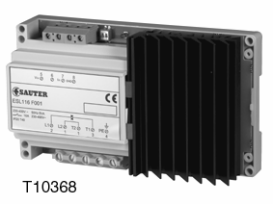
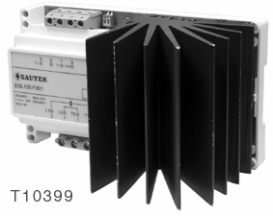
ESL: Electronic power control unit


T10368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For quasi-continuous power control of ohmic loads, such as the heating elements in air heaters, steam generators, fan convectors etc. Suitable for all controllers with a control signal of 0…10 V, 2...10 V, 0…20 mA or 4...20 mA.
Housing with heat sink and integrated circuit; for panel mounting on rails as per DIN/EN 50022. DIP switches for selecting the control signal. LED for displaying the switching status. Screw terminals for electric wires of 1 mm² (for control signals) and 4 mm² (power signals).

Type	Rating	Power supply	Weight [kg]
ESL 116 F001	3.7 kW (230 V~)	230/400 V~	0.500
ESL 125 F001	5.8 kW (230 V~)	230/400 V~	0.800

Voltage	Circuit	Number of ESLs	ESL 116	ESL 125
230 V~	single-phase	1	3.7 kW	5.8 kW
400 V~	dual-phase	1	6.4 kW	10.0 kW
3 × 400 V~	star-delta	2	11.0 kW	17.3 kW
3 × 400 V~	delta	3	19.0 kW	30.0 kW

Inputs:-
- Control signal y: 0/2...10 V, R_i > 100 kΩ; 0/4...20 mA, R_i < 170 Ω

Power supply:-
- Voltage: 230…400 V~
- Tolerance in power supply: ± 20%, 50...60 Hz
- Power consumption: max. 5 VA

Output:-
- Nominal voltage 230 V~: ± 20%, 50...60 Hz
- Nominal voltage 400 V~: ± 20%, 50...60 Hz
- Period duration: approx. 45 sec.

	ESL 116	ESL 125
Nominal current	16 A	25 A
Min. nominal current	2.0 A	2.0 A
cos phi	> 0.95	> 0.95
Max. dissipated power	20 W	40 W

Ambient temperature.	0...65°C 0...40°C at rated current
Storage & transport temp.	–25...+65°C
Ambient humidity	5…95 %rh non-condensating
Degree of protection	IP20 (EN 60529)
Protection class	I (IEC 60730 - 1)
Over-voltage category	II (IEC 60730 - 1)
Conformity	CE
EMC immunity	EN 61000 - 6 - 1; 2
EMC irradiation	EN 61000 - 6 - 3; 4
Safety	EN 60730 - 1

Documentation	ESL 116	ESL 125
Wiring diagram	A10377	A10377
Dimension drawing	M10399	M10416
Fitting instructions	MV 505937	MV505948


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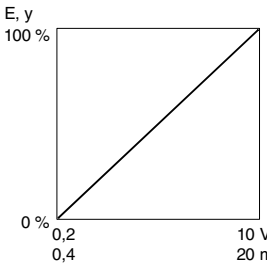

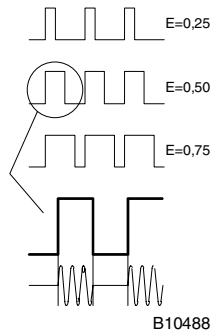

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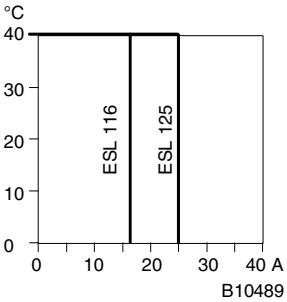
Operation
The ESL electronic power control unit has a characteristic curve E = f(y). Various control signals can be used (0/2…10 V; 0/4… 20mA). The heating output is controlled quasi-continuously, i.e. the heating coil switches on and off in pulses. The control and power circuits are electrically isolated from each other by an opto-coupler. The power switch is a triac. The switching time is triggered to the zero cross-over of the sinus-wave voltage, which prevents radio interference. When the output signal is switched on, it is indicated by an LED. If the temperature of the heat sink is too high, either the heating coil or the output signal is switched off. When the temperature at the heat sink falls below a limit, the output signal is switched back on. This prevents the ESL from overheating and, therefore, becoming damaged.

Engineering and fitting notes
For three-phase current, several ESLs are required, depending on the circuit (see wiring diagram).



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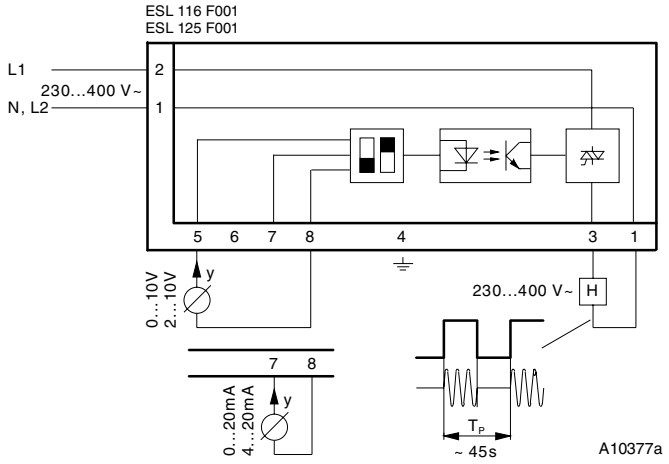
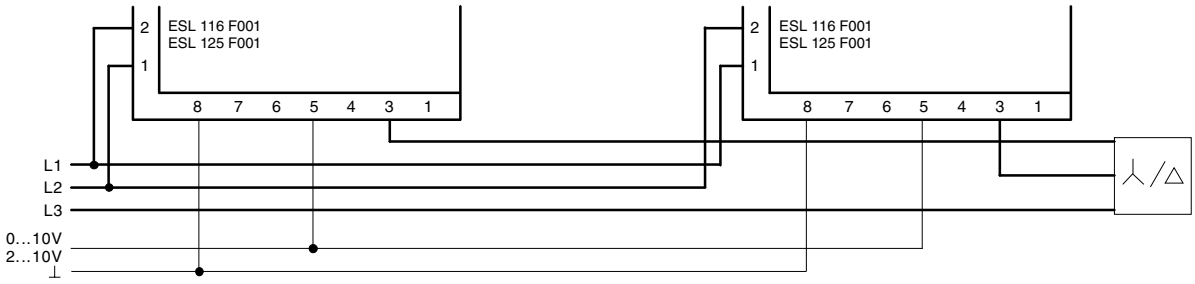
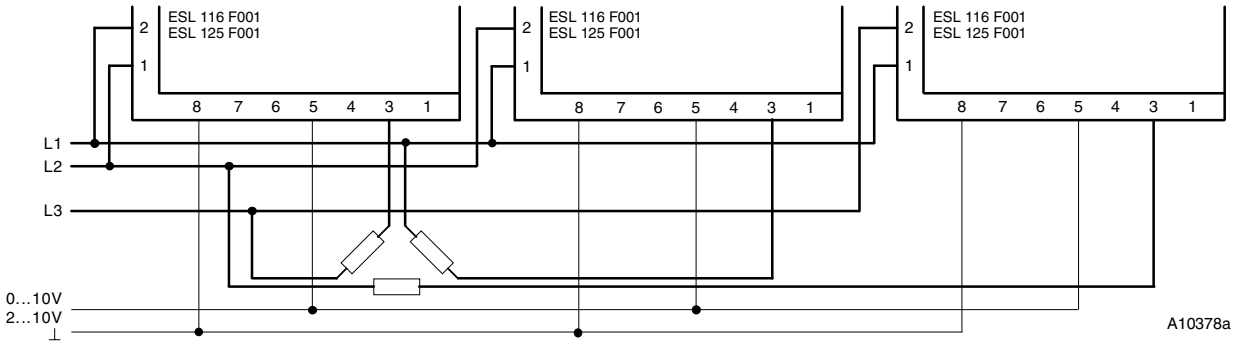
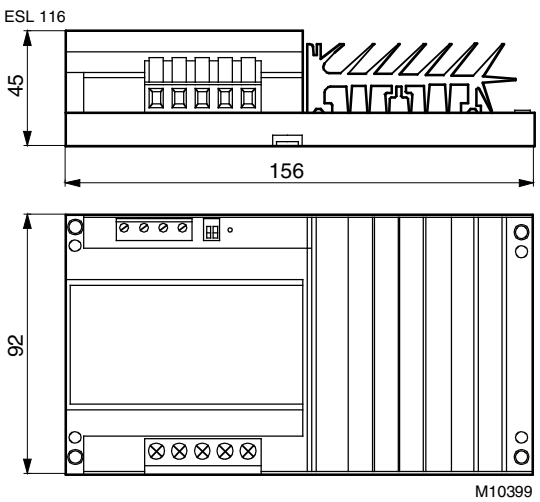
Wiring diagrams

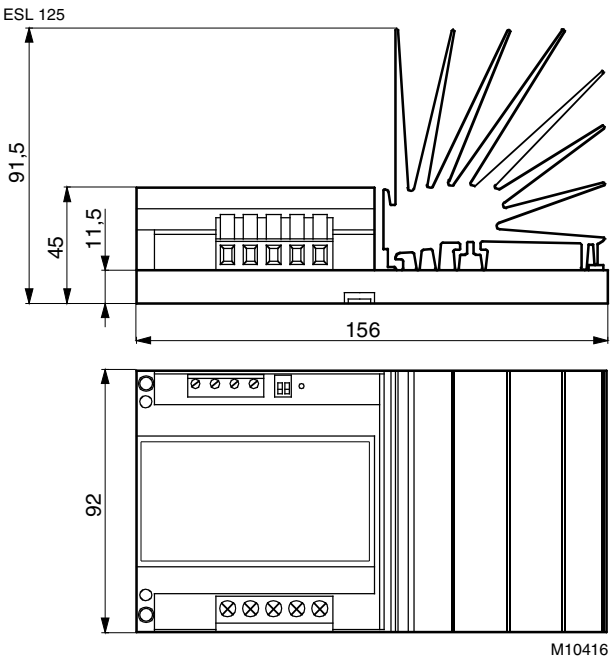






Dimension drawing





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N.B.: A comma between cardinal numbers denotes a decimal point

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