

Electronic Circuit Breaker ESS22-T

Double pole protection for ungrounded DC 24 V systems



Technical information

Electronic Circuit Breaker ESS22-T

The double pole electronic circuit breaker ESS22-T allows individual integration in ungrounded DC 24 V power supply systems. Major applications are IT systems in the steel industry, in process control of the chemical industry as well as in power plant technology. The ESS22-T, with a width of only 22.5 mm and a height/depth of only 90 mm, can be snapped onto symmetrical rails, ensuring ease of installation and saving space in compact control cabinets.

Type ESS22-T provides selective disconnection and double pole physical isolation of loads and will only discon-

nect faulty load circuits in the event of an overload or short circuit. It responds fast enough to ensure stability of the 24 V control voltage for the other loads (PLCs, bus couplers, control systems etc.), preventing stoppages of the entire automation system.

Short circuit currents will be limited to 1.4 times rated current, the faulty load circuit will be disconnected after approx. 100 ms. Inrush peaks, however, will be tolerated. Thus it is possible to switch on capacitive loads of up to 20,000 μ F. In the event of an overload the electronic circuit breaker will already disconnect at

1.1 times rated current after 3 seconds. The fixed current ratings from 0.5 A through 10 A in accordance with EN 60934 ensure optimal adjustment of the integral fail-safe element to the connected cable cross section.

Status indication of the connected load circuit is provided by a multicolour LED. In the event of a failure the two physically isolated auxiliary contacts (make and break contacts) ensure failure signalisation to the control system.

Technical Data

Operating voltage U_B	DC 24 V (18...32 V)
Current ratings	fixed current ratings: 0.5 A, 1 A, 2 A, 3 A, 4 A, 6 A, 8 A, 10 A
Status indication	multicolour LED, potential-free auxiliary contacts, condition of the ON/OFF switch
Load output	Power-MOSFET and relay switching output with physical isolation, plus- and minus-switching
Overload disconnection	typically 1.1 times rated current (1.05...1.35 times rated current)
Short circuit current I_K	active current limitation typically 1.4 times rated current
Trip times	typically 3 s at $I_{load} > 1.1$ times rated current typically 100 ms...3 s at $I_{load} > 1.4$ times rated current
ON delay t_{start}	typically 0.5 s after each switch-on operation, after reset and after applying operating voltage
Disconnection of load circuit	double pole physical isolation

Features and benefits

- Compliance with requirements of new Machinery Directive 2006/42/EC and the affiliated standard EN60204-1 "Safety of Machinery, Electrical Equipment of Machines", para 9.4.3.1
- Stability of DC 24 V control voltage in the event of overload or short circuit
- Safe connection of capacitive loads up to 20,000 μ F
- Physical isolation of the load circuit ensures complete disconnection of load
- Reliable disconnection even with high cable attenuation



The double pole electronic circuit breaker ESS22-T offers compact DC 24 V protection in a track-mountable design.



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