

Electronic Circuit Breaker



24 DC Electronic Circuit Control

The intelligent current distributor monitors current levels and provides comprehensive system status monitoring. It offers fault protection for system components and switching-mode power supplies, featuring intelligent shutdown, early warning alerts, remote reset capability, and single-channel management functions to ensure optimal system operational performance.

- This electronic circuit breaker provides reliable overload and short-circuit protection.
- The electronic circuit breaker can handle loads of 50,000 microfarads or even higher capacities without requiring a higher rated current setting.
- The four-channel and eight-channel products, with rated currents ranging from 1 to 10 A, offer the flexibility needed for various applications and support customizable rated current settings.
- The electronic circuit breaker features a high channel density, saving space in the control cabinet.
- Some devices also feature active current limiting functionality to prevent overload in the event of a power supply short circuit.



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ELECTRONIC CIRCUIT BREAKER

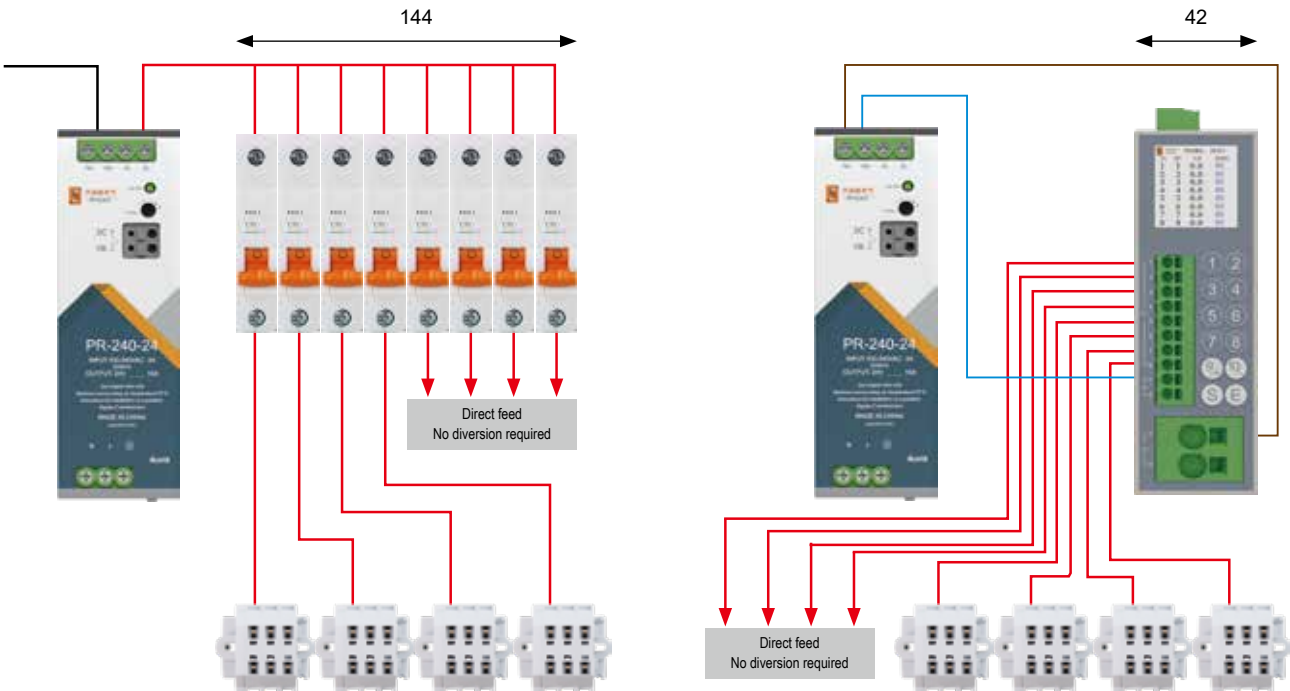
Core difference: From "mechanical response" to "electronic intelligence"

The fundamental difference between the two lies in their protection mechanisms, which directly determine their performance and applicable scenarios. A detailed comparison can be made across six dimensions:

Dimension for Comparison	Traditional circuit breaker (mechanical type)	Electronic Circuit Breaker (Intelligent Type)
Protection Principle	Tripping based on current-dependent thermal/electromagnetic effects via mechanical mechanisms.	Real-time monitoring based on the chip enables active current control (with microsecond-level response).
Protection Precision	The accuracy is low, providing protection only at fixed thresholds with no flexibility for adjustment. The tripping current error typically exceeds $\pm 20\%$.	It features extremely high precision and supports multiple protection threshold settings (e.g., overload, short circuit, overvoltage), compatible with various capacitive loads, with an error margin controlled within $\pm 5\%$.
Function Scalability	It has a single function, providing only basic "overload/shortcircuit protection" without data feedback capability.	It offers extensive features, including overvoltage, undervoltage, and leakage protection, and provides real-time feedback of current, voltage, and other data. Some models support network connectivity for remote contro.
Speed of action	The mechanical movement is slow, with a trip response time typically ranging from 10 to 100 milliseconds, which may cause secondary damage to precision equipment.	The electronic response is rapid, with tripping time reduced to 1–10 milliseconds, enabling instant disconnection of faulty circuits for faster protection.
Capacitive Load	Cannot distinguish between surge current and fault current, leading to frequent false tripping. Limited by the rated current, it is difficult to accommodate ultra-high capacitances (e.g., above 50,000 μF).	It can identify normal startup surges, actively limit current, prevent false trips, is not constrained by physical rated current, and effortlessly drives ultra-high-capacity capacitive loads.
Current Setting	The surge current peak value must be matched; therefore, the rated current must be increased.	No surge peak adaptation is required; simply set it according to the normal operating current of the load.

Amid the trend toward industrial automation, the application of electronic circuit breakers is expanding, yet traditional circuit breakers retain irreplaceable value. For protecting high-value, fault-sensitive precision automation components (such as bus modules and RFID devices), electronic circuit breakers should be prioritized to avoid substantial maintenance costs caused by fault escalation. When equipment requires integration with the Industrial Internet of Things (IIoT) for remote circuit status monitoring or historical fault record retention, electronic circuit breakers are the only viable option; for basic protection only, traditional circuit breakers offer superior cost-effectiveness.

Integrated cabinet wiring layout—significantly simplifies switchgear connections



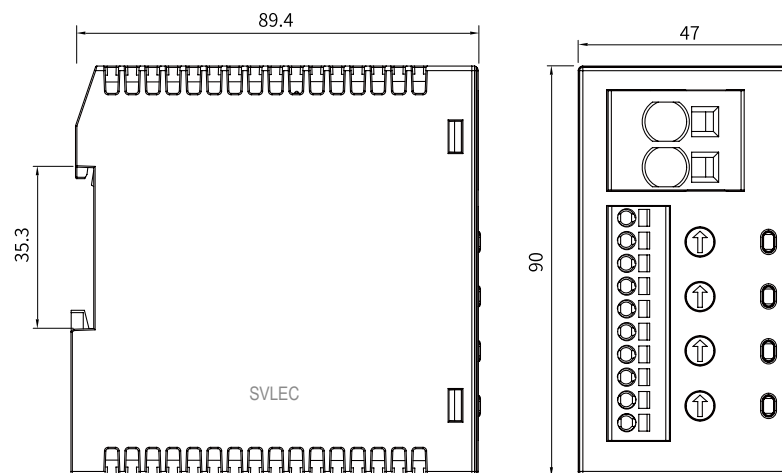
ELECTRONIC CIRCUIT BREAKER

- Overcurrent protection device
- Adjustable current range
- Early warning (90%)

1. Precisely, rapidly, and reliably isolate overload and short-circuit paths on the secondary side—even with long cables and small conductor cross-sections, traditional circuit breakers may cause cable melting or equipment short-circuit damage.
2. Selective tripping, particularly in electronic circuit breakers with active current protection functionality
3. Perform remote operation via digital input and output
4. Reading Function (Communication) — Serial data transmission based on digital input and output
5. The rated current of each channel can be set individually.
6. Compliant with EN 60204-1 standard, capable of reliably interrupting ground faults within five seconds (leakage protection)



Order Data	4 Channel Electronic Circuit Breaker	4 Channel electronic circuit breaker with IO-Link communication
Model	PRA0401	PRA0402
Part No.	760001	760002
Technical data		
Input operating voltage	24 V DC (18...30 V DC)	
Output Current Adjustment	1A/2A/3A/4A/5A/6A/7A/8A/9A/10A, controlled by a rotary switch via a recessed hole	
Output Impact Capacity	Maximum 20 mF (per channel)	
Telecontrol	IO	IO-Link Communication
Control the overall alarm output	The normally closed dry contact outputs NC	Communication Process Data Diagnosis
General data		
Spring-type terminal		
Linkage	2 x 16 mm ²	
Input terminal	Output channel 1x4 mm	
Leading-out terminal	2	
Alarm terminal	2.5 mm ²	
Way to install	DIN: Guide rail installation TH35 (EN 60715)	
Ambient temperature	-30 ...70° C	
Dimensions (length L × width W × height H)	89.4 × 47 × 90 mm	



PRB410 / PRB411 Dimension

ELECTRONIC CIRCUIT BREAKER

- Overcurrent protection device
- Adjustable current range
- Early warning (90%)
- Visualize with a display screen
- Through the IO-LINK/Modbus TCP interface, remote visual monitoring and control can be achieved.



Order Data	Electronic Circuit Breaker	Electronic Circuit Breaker With IO-Link communication	Electronic Circuit Breaker With Modbus TCP communication
4 channel model no.	PRA0412	PRA0413	PRA0414
4 channel part numbe	760021	760022	760023
8 channel model no.	PRA0801	PRA0802	PRA0805
8 channel part numbe	760011	760012	760013
Technical data			
Input operating voltage	24 V DC (18...30 V DC)		
Output Current Adjustment	1A,2A,3A,4A,5A,6A,7A,8A,9A,10A – Adjust using the panel buttons		
Output Impact Capacity	Maximum 20 mF (per channel)		
Telecontrol	IO	IO-Link Communication	Modbus TCP communication
Control the overall alarm output	The normally closed dry contact outputs NC	Communication Process Data Diagnosis	
General data			
Linkage	Spring-type terminal		
Input terminal	2 x 16 mm ²		
Leading-out terminal	Output channel 1 x 4 mm		
Alarm terminal	2		
Way to install	DIN: Guide rail installation TH35 (EN 60715)		
Ambient temperature	-30 ...70°C		
Dimensions (length L × width W × height H)	80 × 42 × 125 mm		

