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Казахстан +7(7172) 727-132

Киргизия +996(312) 96-26-47

<https://sassin.nt-rt.ru/> || sib@nt-rt.ru

iRB700E Smart Residual Current Circuit Breaker with Overcurrent Protection

iRB700E series smart miniature circuit breakers are newly developed smart electric product which is with functions of residual current protection, overcurrent short-time delayed short-circuit protection, short-circuit instantaneous protection, under-voltage and over-voltage protection, phase-failure protection (three p reclosing).



Standard

- IEC 61009-1

Application

Suitable for single phase, three phase three line and three phase four line low voltage power distribution system which neutral point grounding directly (TT), to protect the circuits and electric equipment against residual current, overcurrent, short-circuit, under-voltage and over-voltage, over temperature and phase failure (three phase).

The smart switches can be operated by manual in local, or remotely if a smart gateway is applied.

Functions

Functions	Settings	
Protection	Overcurrent protection	
	Short circuit protection	
	Residual current protection	30 mA
	Auto-reclosing	
	Phase failure protection	Available for iRB716E
	Over-voltage protection	275 V / 480 V
	Under-voltage protection	160 V / 280 V
	Over temperature protection ¹⁾	80 °C (optional function)
	Over power protection	
	Phase imbalance protection	≤ 5%, available for iRB716E
Detection and measurement	Voltage	Real-time monitoring
	Current	
	Temperature	
	Power	
	Power consumption measurement	
Communication port	RS485 (MODBUS)	
Control	Standard configuration	
	Time open or close.	
	Function can be closed.	

¹⁾ Over temperature function is optional, additional temperature detection cables PT100 is available depending on order.

Technical specifications

**iRB715E****iRB716E****Basic data**

Number of poles		1P+N		3P+N
Standard		IEC 61009-1		
Frame size	A	63		
Tripping characteristics		C characteristic (5-10) I _n D characteristic (10-14) I _n		
Rated current I _n	A	6, 10, 16, 20, 25, 32, 40, 50, 63		
Rated voltage U _e	V AC	230		400
Rated residual current I _{Δn}	mA	30		
Rated frequency f	Hz	50		
Rated short circuit breaking capacity I _{cn}	kA	10		
Communication port		RS485		
Upgrade mode		RS485		

Measurement accuracy

Voltage		1%
Current		1%
Power		1%
Power consumption		1%

Protection parameter

Over temperature action	°C	80
Over-voltage action	V	275
Under-voltage action	V	165
Overcurrent protection		1 ~ I _n adjustable
Residual current protection	mA	30 fixed
Phase imbalance		≤ 5%
Short circuit protection	yes	Yes

Working and installation conditions

Altitude	m	≤ 2000
Ambient temperature	°C	-5 ... +40
Environmental		No explosion danger, no conductive dust, no corrosion of metal and damage to insulation, no significant shock and impact
Relative humidity		50% at +40 °C. Higher relative humidity is available at lower temperatures.
Storage temperature	°C	-40 ... +80
Pollution level		II
Installation category		II

Dimensions

L	mm	120.5	120.5
W	mm	54	90
H	mm	77.6	77.6

Trip characteristics**Thermal release**

Tripping characteristics	Test current	Initial condition	Limit of tripping or non-tripping time	Result to be obtained
C	1.13 I _n	Cold	≤ 1 h	No tripping
	1.45 I _n	Immediately following test 1.13 I _n	< 1 h	Tripping
D	1.13 I _n	Cold	≤ 1 h	No tripping
	1.45 I _n	Immediately following test 1.13 I _n	< 1 h	Tripping

Electromagnetic release

Tripping characteristics	Test current	Initial condition	Limit of tripping or non-tripping time	Result to be obtained
C	5 I _n	Cold	≤ 0.1 s	No tripping
	10 I _n		< 0.1 s	Tripping
D	10 I _n	Cold	≤ 0.1 s	No tripping
	14 I _n		< 0.1 s	Tripping

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