

# 2

## Ratings and Specifications

### Earth Leakage Circuit Breakers

18 Single phase 3-wire earth leakage circuit breaker with neutral phase open protection (Harmonics/surge with countermeasure)

Frame size (A)	50	100	125	100	125	225	250	
Type	<b>PZE50-NFN</b>	<b>PZE125-NFN</b>		<b>ZNS125-SF</b>		<b>ZNE250-SF</b>		
Number of poles / Elements	3P3E (40)	3P3E (40)	3P3E (40)	3P3E (40)	3P3E (40)	3P3E (40)	3P3E (40)	
Phase and wires	1ø3W	1ø3W	1ø3W	1ø3W	1ø3W	1ø3W	1ø3W	
<b>■ Ratings</b>								
Rated current, A	15 40	60	125	15 40 75	125	125 225	250	
Calibrated at 40°C	20 50	75		20 50 100		150		
	30	100		30 60		175		
						200		
Rated operational voltage AC V	100/200	100/200	100/200	100/200	100/200	100/200	100/200	
Rated impulse withstand voltage [ $U_{imp}$ ] kV	6	6	6	8	8	8	8	
Rated sensitivity current mA	30	30	30	30	30	30	30	
Instantaneous tripping type		100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	
Max. operating time sec	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
Time delay tripping type	—	—	—	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	
Max. operating time sec	—	—	—	0.45	0.45	0.45	0.45	
Non-operating time sec	—	—	—	0.1	0.1	0.1	0.1	
Single 3-phase neutral wire open phase protection characteristics	Rated operating overvoltage AC V 135 Rated non-operating overvoltage AC V 120 Rated overvoltage operating time (sec) 1 or less	135 120 1 or less	135 120 1 or less	135 120 1 or less	135 120 1 or less	135 120 1 or less	135 120 1 or less	
<b>■ Rated breaking capacity, kA</b>								
JIS C 8201-2-2 Ann.2 $I_{cu}$ (sym) AC 100/200V	10	25	25	50	50	35	35	
<b>■ External dimensions, mm</b>								
	a	b	c	d				
	75	130	68	90	75	105	105	
					130	165	165	
					68	68	68	
					95	95	95	
Weight (● marked standard type) kg	0.8	0.9	0.9	0.95	0.95	1.7	1.7	
<b>■ Connections and Mountings</b>								
Front-connected (FC)	Terminal screws	● 45	●	● 4	●	●	●	
	With extension bars	○ 53	○ 53	○ 53	○ 53	○ 53	○ 53	
Rear-connected (RC)	Flat bar studs	△	△	△	△	△	△	
DIN rail mount		○ 11	○ 11	○ 11	○ 11	—	—	
<b>■ Accessories (optional)</b>								
	Symbol							
Internally mounted	Auxiliary switch	A X	●	●	●	●	●	
	Alarm switch	A L	●	●	●	●	●	
	Shunt trips	S H	—	—	—	—	—	
	Undervoltage trips	U V	—	—	—	—	—	
	Test lead	T L	—	—	●	●	●	
	Megger test switch	MG	—	—	●	●	●	
	Motor operator	MC	—	—	—	●	●	
	Externally mounted	External operating handle	Breaker-mounted	H B	●	●	●	●
			Door-mounted (variable depth)	H P	●	●	●	●
		Toggle extension		H A	—	—	—	—
Mechanical			Slide type	M S	●	●	●	●
interlock			Link type	M L	—	—	—	
		Wire type	M W	—	—	—		
Toggle holder		H H	●	●	●	●	●	
Toggle lock		H L	●	●	●	●	●	
Terminal cover		For front-connected	C F	●	●	●	●	
		For rear-connected	C R	●	●	●	●	
Terminal block for lead	T F	●	●	●	●	●		
Door flange	D F	—	—	—	—	—		
CE marking		Non	Non	Non	Non	Non	Non	
Earth leakage trip mechanism (Current operation type)		Electronic	Electronic	Electronic	Electronic	Electronic	Electronic	
Overcurrent trip mechanism		Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	
Overvoltage / Earth leakage indication		Mechanical button	Mechanical button	Mechanical button	Mechanical button	Mechanical button	Mechanical button	
Colour of cover		Grey Blue	Grey Blue	Grey Blue	Grey Blue	Grey Blue	Grey Blue	
Trip button (Colour)		Yes (Red)	Yes (Red)	Yes (Red)	Yes (Red)	Yes (Red)	Yes (Red)	
Suitability for isolation		Yes	Yes	Yes	Yes	Yes	Yes	
Reverse power flow circuit		Non	Non	Non	Yes 75	Yes 75	Yes 75	
Page of characteristics and outline dimensions		7-212	7-212	7-212	7-214	7-214	7-216	

**Notes:**

- : Standard. This configuration used unless otherwise specified.
- : Optional standard. Specify when ordering.
- : "yes" or "available". — : "no" or "not available". △ : Custom-built product. Please contact us for details.
- ④ : 50A or less is the M5 wire clamping terminal.
- ⑪ : Please order the DIN rail adapter separately. See page 6-156.
- ④⑩ : They can also be applied to circuits where overcurrent flows in the neutral wire. Can be used as a main circuit breaker for photovoltaic power generation systems. See page 3-27 for details.
- ⑤③ : A wire clamping terminal is provided.
- ⑤③ : For the extension bars, please place the order separately in parts.
- 75 : Since the overvoltage and earth leakage detection circuit has a continuous rating specification, there is no need to turn off the power of the detection circuit using a megger test switch, etc.

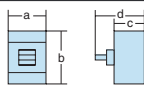
Remarks: See pages 3-25 and 3-26 for connection details.

# 2

## Ratings and Specifications

### Earth Leakage Circuit Breakers

#### 18 Single phase 3-wire earth leakage circuit breaker with neutral phase open protection (Harmonics/surge with countermeasure)

Frame size (A)	225	250	400	400					
Type	ZNS250-SF		ZNE400-NF	ZNS400-NF					
Number of poles / Elements	3P3E ④	3P3E ④	3P2E ⑱	3P2E ⑱					
Phase and wires	1ø3W	1ø3W	1ø3W	1ø3W					
<b>■ Ratings</b>									
Rated current, A	125 225	250	250	250					
Calibrated at 40°C	150		300	300					
	175		350	350					
	200		400	400					
Rated operational voltage AC V	100/200	100/200	100/200	100/200					
Rated impulse withstand voltage [ $U_{imp}$ ] kV	8	8	8	8					
Rated sensitivity current mA	30	30	30	30					
Instantaneous tripping type	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable					
Max. operating time sec	0.1	0.1	0.1	0.1					
Time delay tripping type	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable	100/200/500 selectable					
Max. operating time sec	0.45	0.45	0.45	0.45					
Non-operating time sec	0.1	0.1	0.1	0.1					
Single 3-phase neutral wire open phase protection characteristics	Rated operating overvoltage AC V 135 Rated non-operating overvoltage AC V 120 Rated non-overvoltage operating time (sec) 1 or less	135 120 1 or less	135 120 1 or less	135 120 1 or less					
<b>■ Rated breaking capacity, kA</b>									
JIS C 8201-2-2 Ann.2 $I_{cu}$ (sym) AC 100/200V	85	85	35	85					
<b>■ External dimensions, mm</b>									
	a	105	105	140	140				
	b	165	165	260	260				
	c	68	68	103	103				
	d	95	95	145	145				
Weight (● marked standard type) kg	1.7	1.7	5.2	5.2					
<b>■ Connections and Mountings</b>									
Front-connected (FC)	Terminal screws	●	●	●	●				
	With extension bars	○ ⑤③	○ ⑤③	○	○				
Rear-connected (RC)	Flat bar studs	△	△	△	△				
DIN rail mount		—	—	—	—				
<b>■ Accessories (optional)</b>									
	Symbol								
Internally mounted	Auxiliary switch	A X	●	●	●	●			
	Alarm switch	A L	●	●	●	●			
	Shunt trips	S H	—	—	—	—			
	Undervoltage trips	U V	—	—	—	—			
	Test lead	T L	●	●	●	●			
Externally mounted	Megger test switch	MG	●	●	●	●			
	Motor operator	M C	●	●	●	●			
	External operating handle	Breaker-mounted	H B	●	●	●	●		
		Door-mounted (variable depth)	H P	●	●	●	●		
	Toggle extension	H A	—	—	●	●			
	Mechanical interlock	Slide type	M S	●	●	●	●		
		Link type	M L	—	—	—	—		
		Wire type	M W	—	—	—	—		
	Toggle holder	H H	●	●	●	●			
	Toggle lock	H L	●	●	●	●			
	Terminal cover	For front-connected	C F	●	●	●	●		
		For rear-connected	C R	●	●	●	●		
	Terminal block for lead	T F	●	●	●	●			
	Door flange	D F	—	—	—	—			
	CE marking		Non	Non	Non	Non			
Earth leakage trip mechanism		Electronic	Electronic	Electronic	Electronic				
Overcurrent trip mechanism		Thermal-magnetic	Thermal-magnetic	Thermal-magnetic	Thermal-magnetic (adjustable)				
Overvoltage / Earth leakage indication		Mechanical button	Mechanical button	Mechanical button	Mechanical button				
Colour of cover		Grey Blue	Grey Blue	Grey Blue	Grey Blue				
Trip button (Colour)		Yes (Red)	Yes (Red)	Yes (Red)	Yes (Red)				
Suitability for isolation		Yes	Yes	Yes	Yes				
Reverse power flow circuit		Yes ⑦⑤	Yes ⑦⑤	Yes ⑦⑤	Yes ⑦⑤				
Page of characteristics and outline dimensions		7-216	7-216	7-218	7-218				

**Notes:**

- : Standard. This configuration used unless otherwise specified.
- : Optional standard. Specify when ordering.
- : "yes" or "available". — : "no" or "not available". △ : Custom-built product. Please contact us for details.
- ⑱ : Do not apply to circuits where overcurrent flows in the neutral wire.
- ④ : They can also be applied to circuits where overcurrent flows in the neutral wire. Can be used as a main circuit breaker for photovoltaic power generation systems. See page 3-27 for details.
- ⑤③ : For the extension bars, please place the order separately in parts.
- ⑦⑤ : Since the overvoltage and earth leakage detection circuit has a continuous rating specification, there is no need to turn off the power of the detection circuit using a megger test switch, etc.

Remarks: See pages 3-25 and 3-26 for connection details.