SIEMENS

SINOVA 3WJ
Air Circuit Breakers

Efficient. Adaptable. Reliable

Overview

SINOVA 3WJ Air Circuit Breakers offer a comprehensive range of protection features for safe and reliable low voltage power distribution. Designed to comply with the latest international standards, providing a cost-efficient solution for infrastructure, buildings, utilities, and industrial applications – today and over the entire life cycle.

Key Features

Adaptable

Common footprints for simple and quick integration.

Comprehensive

Available up to 4000A to cater to all your standard application needs.

Customizable

Complete flexibility for users to choose the right features ensuring cost-efficient performance.

Safe

Ensuring the safety of people and plants

Plant safety

Precise protection for installations preventing the development of ground faults.
Less thermal stresses on busbar and cables.

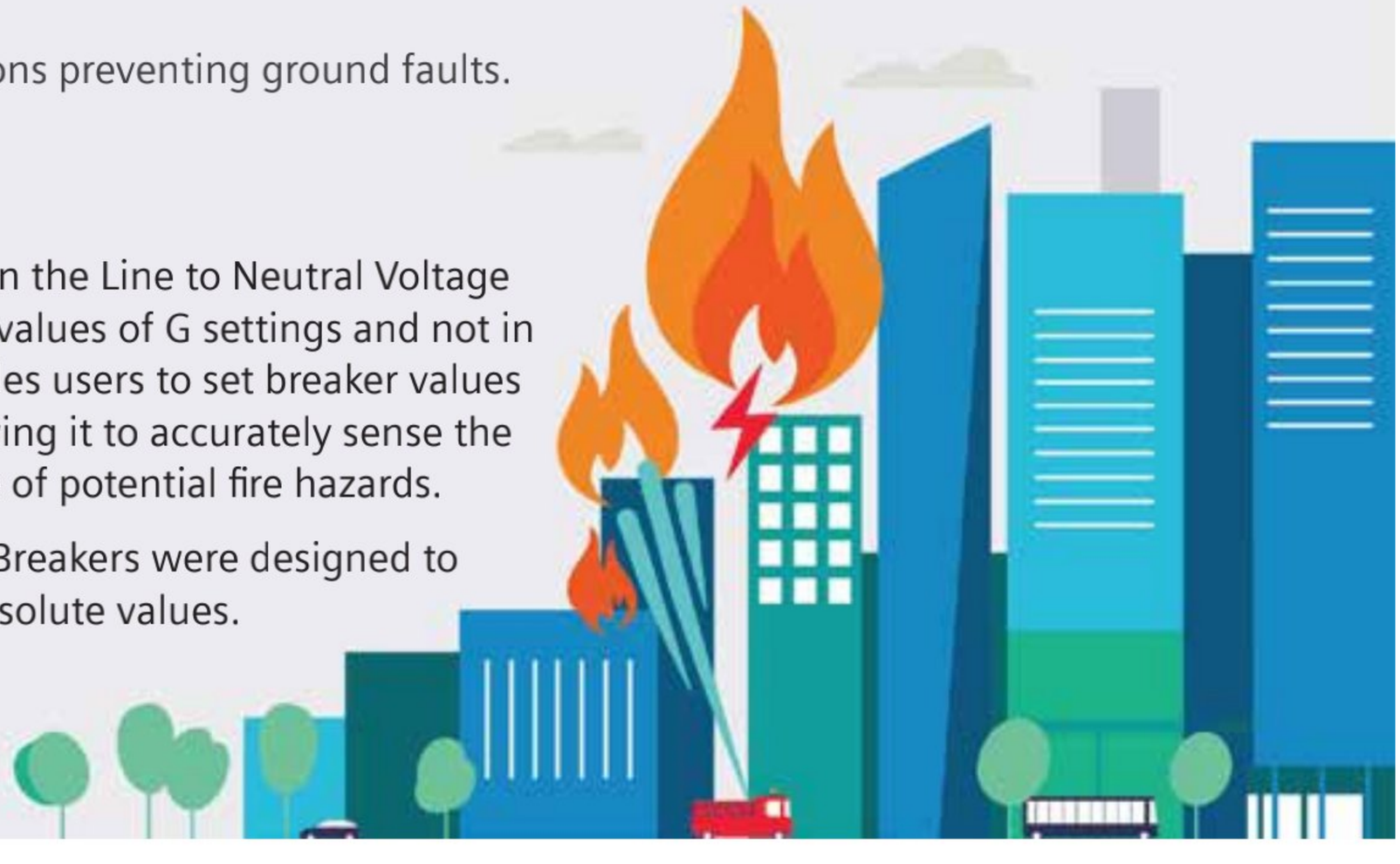
People safety

Closer protection for installations preventing ground faults.

Plant Safety

The Ground Fault Current depends on the Line to Neutral Voltage and fault loop impedance. Absolute values of G settings and not in percentage of nominal current enables users to set breaker values closest to the calculated value, allowing it to accurately sense the ground fault, eliminating the chance of potential fire hazards.

As such, the SINOVA 3WJ Air Circuit Breakers were designed to have settings that are available in absolute values.



People Safety

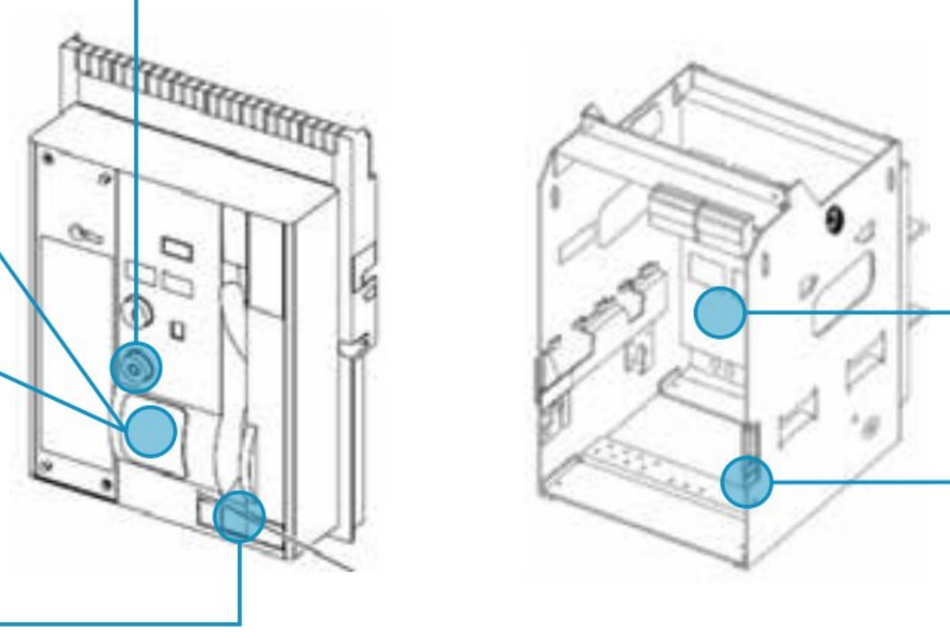
Multiple standard features and optional features for safe operation

Sealing cap
for OFF button

Interlocking system;
2 keys for 3 breakers

Mechanically OFF
(key operated)

Crank handle on
withdrawable
air circuit breaker



Shutter

Guide rails

Efficient

Increased plant efficiency with reduced down time

Mechanical Contact Erosion Indicator

Plant operators are able to easily check the health of the air circuit breakers via the contact erosion indicators at periodic intervals enabling plant maintenance to be scheduled in advance.

This reduces the frequency of unplanned shutdowns and increases operation efficiency.

Unique Ready To Close Indicator

Facilitates start-up	Safe switching on	Faster fault analysis

Customizable

Flexibility to select from a variety of accessories.

Shunt release

Undervoltage release

Motor for motorized operating mechanism

Switching cycle counter

Combination current sensor

External current transformer for neutral

Subsequent retrofitting is possible at any time

Key Applications

Designed to address the pressing needs of all stakeholders in the project value chain

Power distribution is going through a paradigm shift as cost-efficiency is of paramount importance in todays building and industrial projects.

The fast pace of changing application requirements continues to escalate daily. This requires products and solutions that cater to the specific needs of each stakeholder in the value chain, starting from the project inception phase through to the operation and maintenance phase of projects.

Consultant

Cost-efficient solutions, delivered with shorter lead times are the top priority of consultants today.

Our range of SINOVA 3WJ Air Circuit Breakers provides cost-efficiency by offering consultants the flexibility of configuring each product to meet specific application needs.

Panel Builders

SINOVA 3WJ is a comprehensive range of air circuit breakers that caters to all standard applications up to 4000A. Designed with common footprints to existing air circuit breaker portfolios enabling simple and quick adaptation.

These features allow panel builders to deliver cost-efficient solutions to customers with short-lead times.

Contractors (EPC)

The demand for more cost-efficient, safe and adaptable solutions is ever increasing for contractors in the installations and commissioning phase of projects.

The pre-readiness for installation at the commissioning phase is a crucial time for contractors to ensure cost optimization and manage risk.

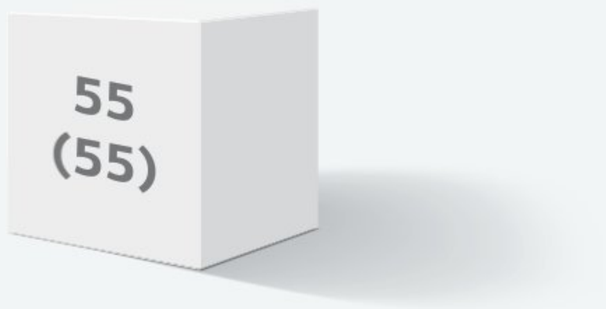
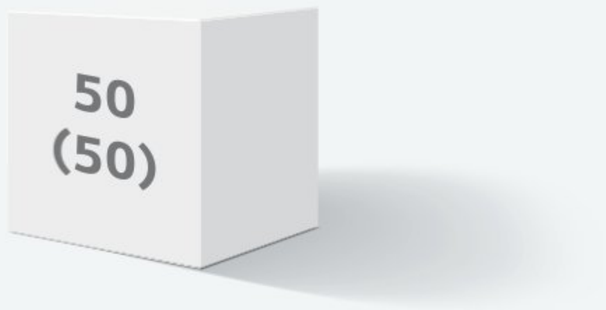
The SINOVA 3WJ Air Circuit Breakers allows time saving during installation and enables faster commissioning with:

- The availability of how-to videos and a comprehensive CAx library.
- Common footprints and complete flexibility in product selection.

End User

Designed for todays power requirements of safety, reliability and cost-efficiency that are of paramount importance for facility teams, the SINOVA 3WJ Air Circuit Breakers adheres to the latest international standards (IEC 604947-2). The common footprint feature helps to reduce OPEX by minimizing inventory and allowing for easy periodic upgrades with the availability of a wide range of accessories.

Product Range

	Rated currents **In max (A)**	Short Circuit breaking capacity **I_{cu} / I_{cs}** **I_{cw} for 1s (kA)**
Frame size II 	4000A 3200A 2500A 2000A	
Frame size I 	1600A 1250A 1000A 800A	

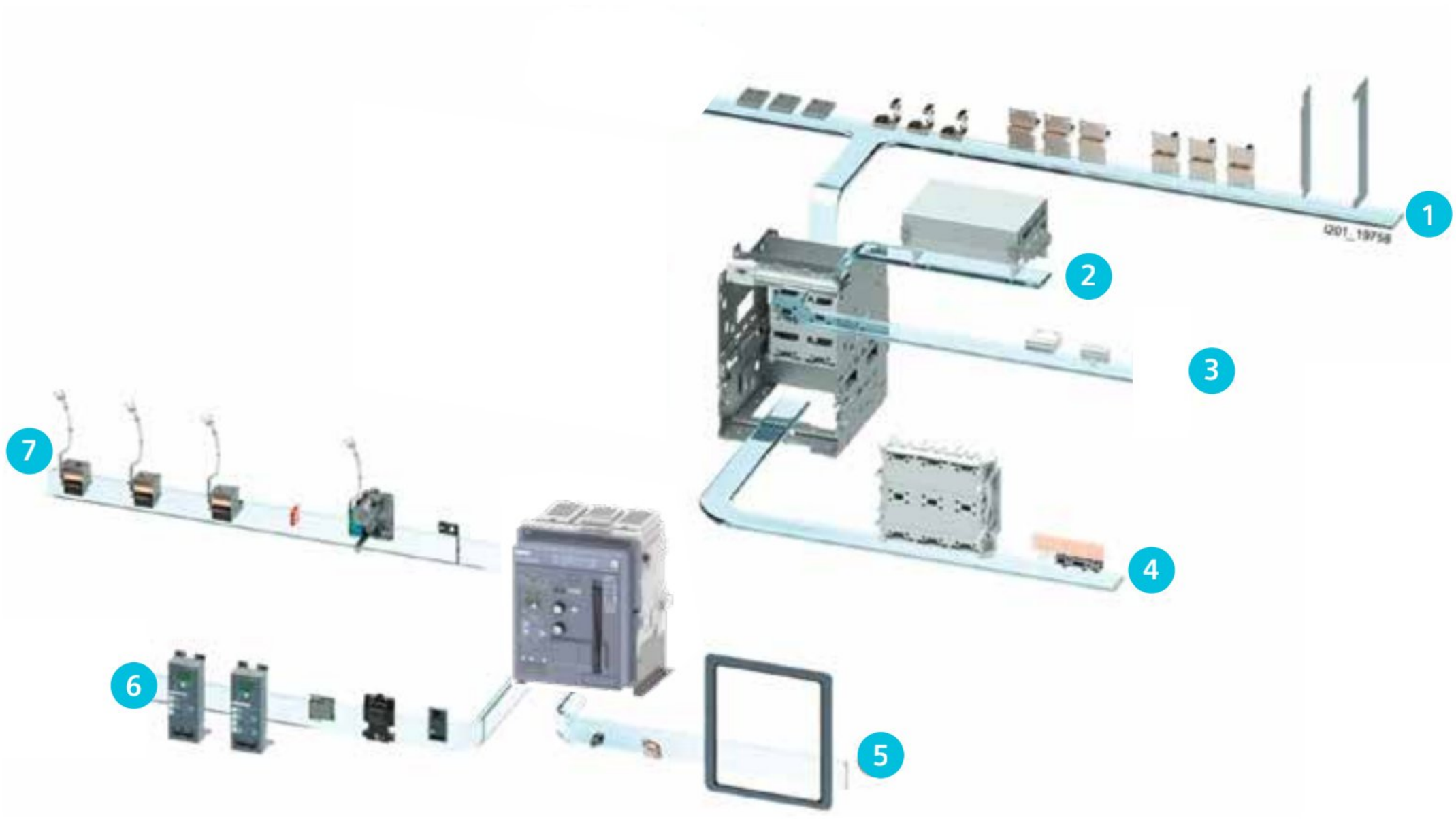
- 2 frame sizes
- 800A to 4000A
- Breaking capacity up to 55kA
- Suitable for up to 440V AC
- 3-pole and 4-pole
- Fixed-mounted and withdrawable design
- Withdrawable version in various termination options e.g., H-H (as standard) / H-V / V-V / V-H

ETU variants to suit all standard applications

		
Type	**ETU350WJ**	**ETU360WJ**
Protective functions	L-S-I	L-S-I-N-G
LCD Display	✓	✓
Neutral conductor protection	-	✓
LEDs for fault annunciation	✓	✓
Overload (L)	✓	✓
Short Time Delayed Short Circuit (S)	✓	✓
Instantaneous Short Circuit (I)	✓	✓
Ground Fault (G)	-	✓

Accessories

Extensive, consistent and modular accessories to easily expand functions



1 Main connection, phase barrier

2 Arc chute cover

3 Auxiliary conductor plug-in system

4 Guide frame, shutter, position indicator switch

5 Door sealing frame, locks

6 Electronic trip unit (ETU)

7 Closing solenoid, auxiliary trip unit

MLFB Structure

Basic configuration for AC circuit breakers and AC non-automatic circuit breakers

3WJ1	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	Z

Switching device

Frame size		5
	1	1
	2	2

		SZ 1	SZ 2	6	7
Max. rated current $I_{n\,max}$	800A	■	–	0	8
	1000A	■	–	1	0
	1250A	■	–	1	2
	1600A	■	–	1	6
	2000A	–	■	2	0
	2500A	–	■	2	5
	3200A	–	■	3	2
	4000A	–	■	4	0

		SZ 1	SZ 2		8
Breaking capacity I_{cu}/I_{cs} (kA), I_{cw} for 1s (kA) at 440V AC	Breaking capacity S	■	–	50/	2
		–	■	55/	2

		9	10
AC Non-automatic circuit breakers	ETU	A	A
Circuit breakers, Display with Current Metering			
Electronic trip unit	ETU350WJ:LSI	A	E
	ETU360WJ:LSIG	A	F

				11
Number of poles	Fixed-mounted		3-pole	0
			4-pole	1
	Withdrawable	Without position signaling switch and without shutter	3-pole	3
			4-pole	4
		Without position signaling switch and with shutter	3-pole	5
			4-pole	6

Connection

		SZ 1	SZ 2		12
Type of mounting	Fixed-mounted	■	■	Vertical	1
		■	■	Horizontal(1)	2
		■	■	Vertical on top / horizontal at the bottom(1)	5
		■	■	Horizontal on top / vertical at the bottom(1)	6
	Withdrawable	■	■	Without guide frame	0
		■	■	Vertical	1
		■	■	Horizontal	2
		■	■	Vertical on top / horizontal at the bottom	5
		■	■	Horizontal on top / vertical at the bottom	6

Spring charging motor (M), Auxiliary switches (AUX)			13
without Spring charging motor and without auxiliary switches			0
without Spring charging motor but with auxiliary switches 2 NO, 2 NC		S1, S2,	1
Auxiliary switches 2 NO, 2 NC and Spring charging motor		S1, S2,	-
Spring charging motor	24VDC		2
Spring charging motor	110-127 VAC / 110-125 VDC		3
Spring charging motor	220-240 VAC / 220-250 VDC		4
Auxiliary switches 4 NO, 4 NC and Spring charging motor		S5, S6	
Spring charging motor	24VDC		5
Spring charging motor	110-127 VAC / 110-125 VDC		6
Spring charging motor	220-240 VAC / 220-250 VDC		7

Note: 4000A is available for fixed-mounted vertical (1) and withdrawal vertical (1)

MLFB Structure

Basic configuration for AC circuit breakers and AC non-automatic circuit breakers

3WJ1	5	6	7	–	8	9	10	11	12	–	13	14	15	16	–	Z

Closing coil

without closing coil		A
Closing coil (CC)		
Closing coil	24V DC	B
Closing coil	110-127 V AC / 110-125 V DC	C
Closing coil	220-240 VAC / 220-250 VDC	D

1st Auxiliary release

without 1st Auxiliary release				A
Shunt trip (ST)				
Shunt trip	24 V DC	--	100% OP	B
Shunt trip	110 ... 125 DC	110 ... 127 AC	100% OP	C
Shunt trip	220 ... 250 DC	220 ... 240 AC	100% OP	D
Undervoltage release (UVR), instantaneous (≤ 80 ms), short-delay (≤ 200 ms)				
UVR	24 V DC			E
UVR	110-127 V AC / 110-125 V DC			F
UVR	220-240 VAC / 220-250 VDC			G
UVR	380-415 V AC			H
Undervoltage release (UVR-t), can be delayed between 0.2 s and 3.2 s				
UVR-t	110-127 V AC / 110-125 V DC			J
UVR-t	220-240 VAC / 220-250 VDC			K
UVR-t	380-415 V AC			L

2nd Auxiliary release

without 2nd Auxiliary release				0
Shunt trip (ST), suitable for continuous duty				
Shunt trip	24 VDC	--	100% OP	1
Shunt trip	110 ... 125 DC	110 ... 127 AC	100% OP	3
Shunt trip	220 ... 250 DC	220 ... 240 AC	100% OP	4

Z options

Door Sealing Frame (IP41)	T40
Trip Unit Cover	F40
Position Signal Switch (1x connected, 1x test, 1x disconnected)	R15
Position Signal Switch (3x connected, 2x test, 1x disconnected)	R16
Neutral CT for 4th Pole	F23
Mutual Mechanical Interlock - Bowden for fixed breakers with 2m bowden cable	S55
Mutual Mechanical Interlock - Bowden for drawout breakers with 2m bowden cable	R55
Locking systems - Castell	S05
Door interlock - To prevent opening of the control cabinet door in ON position	S30
Door interlock - To prevent opening of the control cabinet door in Connected position	R30
5 digit operating counter	C01
Ready to Close	C22
Trip Signal Switch	K07
Special packaging	P61

Note: 4000A is available for fixed-mounted vertical (1) and withdrawal vertical (1)

Technical Specifications

Frame Size			
Breaker Type			
Rated Current In at 40°C,	Main conductor		A
at 50/60 Hz	Neutral conductor (only 4P)		A
Rated operating voltage Ue at 50/60 Hz			AC V
Rated impulse	Main circuits		kV
	Auxiliary circuits		kV
Utilization category			
Rated short-circuit	Breaking capacity	up to	
making capacity Icm (peak value)	S	440V AC	kA
Rated service short-circuit	Breaking capacity	up to	
Breaking capacity Ics (rms value)	S	440V AC	kA
Rated ultimate short-circuit .	Breaking capacity	up to	
Breaking capacity Icu (rms value)	S	440V AC	kA
Permissible ambient temperatures	Operation		°C
	Storage		°C
Rated short-time withstand current Icw at 50/60 Hz		1 secs	kA
Power loss at In	Fixed-mounted		W
with 3-phase symmetric load	Withdrawable including Guide-frame		W
Endurance	Mechanical		Operating cycle
	Electrical up to 440V AC		
Operating Frequency	Mechanical		1/h
Main conductor **minimum cross-section**	Copper bars, bare		Qty mm^2
	Copper bars, bare		Qty mm^2
Auxiliary conductors (Cu)	Solid and		
Max no of aux conductors x cross-section	Finely stranded with end sleeves		

Note: Automatic circuit breakers adhere to IEC 60947-2 standards & non-automatic circuit breakers adhere to IEC60947-2 CBI-Y standards

							
I				II			
3WJ1108	3WJ1110	3WJ1112	3WJ1116	3WJ1220	3WJ1225	3WJ1232	3WJ1240
800	1000	1250	1600	2000	2500	3200	4000
100%							
440							
8							
4							
B							
105	105	105	105	121	121	121	121
50	50	50	50	55	55	55	55
50	50	50	50	55	55	55	55
-20...+70							
-40...+80							
50	50	50	50	55	55	55	55
60 130	90 205	122 255	170 392	216 493	338 563	420 760	750 960
12000 8000	12000 8000	12000 8000	12000 8000	10000 4000	10000 4000	10000 4000	10000 4000
60							
1x 60 x 10	2x 40 x 10	2x 60 x 10	2x 60 x 10	2x 100 x 10	2x 100 x 10	3x 100 x 10	4x 120 x 10
1x 50 x 10	2x 60 x 10	2x 40 x 10	2x 50 x 10	2x 80 x 10	2x 100 x 10	3x 100 x 10	4x 100 x 10
1 x 0.5 ... 2.5mm^2; 1 x AWG14 2 x 1.0 mm^2							

The SINOVA range of products are ideal for infrastructure, buildings, utilities and industrial applications. It packs full features for cost-efficient power distribution, switching and control that is both reliable and safe. The portfolio also features comprehensive product ranges that are designed for a variety of applications, giving users Siemens trusted quality. Simply Efficient, this is the SINOVA way.

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