MITSUBISHI MOLDED-CASE CIRCUIT BREAKERS & EARTH-LEAKAGE CIRCUIT BREAKERS

World Super

NEW BREAKERS FOR THE GLOBAL MARKET

Seri





obal

Mitsubishi Presents the the High Demands of

Mitsubishi Presents the WS Series, Satisfying the High Demands of the Global Standard New from Mitsubishi Electric, the company which has used its impressive controller device line-up in realizing high precision FA support, the WS (World Super) Series of next generation molded case circuit breakers and earth-leakage circuit

High-Performance

Long service life and high reliability, made possible by new equipment breakthroughs.

Glo

Compliance with th

The quest for truly superb breaker function, realizing performance at a full class higher.

eliable



WS Series, Satisfying the Global Standard

breakers. This series complies with IEC and UL/CSA, JIS standards, achieving a stellar level of globalization to satisfy genuine international needs. A product line-up designed with the environment in mind, together with the pursuit of easy usage and high performance to forge the way to a bright new future for breakers.



ne global standards.



Best Solution

Product design for greater easy usage, through wide variations.

Intelligent

New system configuration, on the strength of intelligent breakers.

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Perfect Solution	9
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Global

MITSUBISHI World Super Series Designed for Global Application



Complete change in Mitsubishi breaker design colors

Complete color change to ivory from WS Series. Use of shift to white breakers and more stylish design to boost attention on the international market.

Complying with the various world standards

Besides obvious conforming standards of IEC, UL, CSA and JIS, third-party certification and ship classification standards will also be obtained in each country, to respond to the world market. (Refer to the left entries for more details.)

Raise each rating to address the international market.

- (1) NF30-SP => NF32-SW (2) NF60-HP => NF63-HW
- (3) NF100-SP => NF125-SW

	WS Series International Standard Conformance List													
				Safety Certification		Marine Approvals								
	IEC	JIS	EN	UL	CSA	LR	GL	DNV	ABS	BV	NK			
Standards	International	Japan	Europe	USA	Canada	UK	Germany	Norway	USA	France	Japan			
olanduruo					S P			ĴÅ dinv	ABS		AND			
WS Series	•	•	•	0	0	0	0	0	0	0	0			
(Notes) "●	" respon	ds with	standar	d item. "C	" will man	ufacture a	ccording to	instructior	IS.					

The WS Series presents a new technology.

Reliable

High-Performance

- Cassette-type accessories Wide range of Rated
- Voltage

[PA Auto-Puffer]

Polymer Ablation type Auto-Puffer [Adopted on SGW, HGW, RGW, UGW]

PA auto-puffer is the technology to increase the interrupting performance by blowing out the gas to the arc by right angle. The gas pressure which is generated from high-polymer materials is accumulated in the accumulating space, and the gas is blown to the arc to extinguish. Especially this technology improves the high voltage breaking performance.

(1)Ablation \Rightarrow (2)Gas accumulating \Rightarrow (3)Gas flow \Rightarrow Arc extinguishing

[JPT]

Jet Pressure Trip Mechanism [Adopted on SGW, HGW, RGW, UGW]

Ablation gas jet through the hole installed on the unit case directly activates the trip mechanism. This acts faster than the relay (magnet), and contributes to improved current-limiting performance and breaking reliability.

① High speed type

Isolation suitability • IP20 PM with Safety Device • Handle Lock Device • R/V handle • IP40 Terminal cover

High-Performance

Targets one-class higher performance, in realizing superb breaking performance

[Advanced ISTAC] Advanced Impulsive Slot-Type Accelerator [Adopted on SGW, HOW, ROW, USW]

Further evolution in Mitsubishi original ISTAC breaking technology*. Optimization of the current path and the added magnetic core enhance driving electromagnetic forces. By the high-speed opening and the arc driving, the rising rate of arc voltage is increased and the peak current "Ip " is decreased.

*The triple forces which are the repulsive force, the attractive force, and the pressure accelerate the separating speed of the movable conductor.

[Shunt-less]

Shunt-less Current Flow Technology [Adopted on SGW, HGW, RGW, UGW]

Double plates conductors hold the movable conductor without flexible wires. This shunt-less structure achieves the extending operating cycles.

During revolution the movable contact is constantly in contact with the holder, maintaining current flow.

Interchangeable Relay Unit

To enhance flexibility, the Mitsubishi WS Series is equipped with interchangeable relay units (available in thermal or electronic types).

The move has been made to AC/DC common use, while the expanded adjustment range enables reduction in the number of 250AF relays from 10 to 7 types.

A magnetic adjustable function has been added to the thermal type, while 4P neutral protection has also been enhanced.

(Note: Only authorized members available to replace)

Electronic type unit

Thermal Adjustable Relay

Rating	In (A)		25	40	63	1	00	125		160	250		
	NF250-SGW / HGW												
Туре	NF160-SGW / HG								•				
	NF125-SGW / HG	•				•	•						
Overload Protection (Thermal)													
Tr	inning threshold Ir (۵)		Adjustable									
The pring threshold if (A)			16-25 25-40 40-63 63-100 80-125 125-160 160-250 (160-225)								(160-225)		
Noutre	Neutral and tastics (note 1) 4P3E			No Protection									
Neulla		4P 4E	1 × Ir										
			Sho	rt-Circuit P	rotection (M	lagnetic)							
	Tripping throshold li		Fixed					Adjustable					
	mpping uneshold in		10 × In					4 to 10 × In					

Note: (1) The type 4P3E is standard. If the type 4P4E is required, specify the type 4P4E separately and explicitly.

Electronic Relay

Rating	In (A) (40°C)	32	63	100	125	160	250				
	NF250-SGW / HGW										
Туре	NF160-SGW / HGW					•					
	NF125-SGW / HGW	•	•	•	•						
			Overload Prote	ction							

Tr	ioning threshold Ir (A)		Adjustable									
		16-32	32-63	63-100	75-125	80-160	125-250					
LTD	Tripping time TL(s		12-60-80-100 step adjustable (at $2 \times lr$)									
	Neutral protection (Slectab	e)	0-1 × Ir (Step adjustable)									

		Short-Circuit Protection										
OTD	Pickup current Is	2-2.5-3-3.5-4-5-6-7-8-10 × Ir step adjustable										
SID	Tripping time Ts(s)	0.06-0.1-0.2-0.3 step adjustable (at $1.5 \times Is$)										
INST	Tripping threshold li	4 to 14 × In continuous adjustable										
		Pre-Alarm										
DAL	Pickup current Ip	0.7-0.75-0.8-0.85-0.9-0.95-1.0 × Ir step adjustable										
FAL	Operating time Tp	TL/2										
		Indicator (LED)										
	70%-LED (green)	Lit at 0.7 × Ir										
	PAL-LED (orange)	Flashing at lp and lit at Tp										
	Over -LED (red)	Lit at 1.15 × Ir										

Internal Accessories

Adopted for the internal accessories is a easily installed cassette type. Common use of different voltages realizes major reductions in types.

The UVT for ELCB is also possible. Time delay type variations have also been expanded, addressing a wide range of applications.

Ac (v) (24), (48), 100-120, 200-240, 380-450, (440-550) 24-48, 100-240, 380-550 Dc (v) (12), (24), (36), (48), 100, (110), (125), (220) 12, 24-36, 36-48, 100-125, (220-250)			Prebius madels		WS Series (New)
voltuge DC (V) (12), (24), (36), (48), 100, (110), (125), (220) 12, 24-36, 36-48, 100-125, (220-250)	SHT	AC (V)	(24), (48), 100-120, 200-240, 380-450, (440-550)	24-48, 100-240, 380-550	
	voltuge	DC (V)	(12), (24), (36), (48), 100, (110), (125), (220)		12, 24-36, 36-48, 100-125, (220-250)
UVT voltuge AC (V) 100-110, (100-120), 200-220, (220-240), (380-415), 400-440, (440-480), (500-550) 24/48, 100-110/120-130, 200-220/230-250, 380-415/440-480, 500-550	UVT voltuge	AC (V)	100-110, (100-120), 200-220, (220-240), (380-415), 400-440, (440-480), (500-550)		24/48, 100-110/120-130, 200-220/230-250, 380-415/440-480, 500-550
DC (V) (24), (48), 100, (110) 24/48, 100-110, 110-125		DC (V)	(24), (48), 100, (110)		24/48, 100-110, 110-125

3 Way Lead Wire (Selectable)

Vertical Lead-wire Terminal Block (SHT)

Flying Lead-wire

*Cassette-type Accessories

Cassette-type accessories ensure flexbility when upgrading circuits.

Ordering is easy, and installation is one touch simple and safe too thanks to the insulated cassette design.

Fits all breaker series

The alarm switch (AL), auxiliary switch (AX), shunt trip (SHT), and undervoltage trip (UVT) all comes as cassette-type accessories to suit all breaker series.

3. Open the front cover

4. Install the accessories

5. Close the front cover and tighten the screws

External Accessories

Hight speed Motor Device

Supplied for the 125 through 250AF is a motor device easier to use, which simplifies installation.

- *Adoption of a spring charge mechanism for high-speed operation (0.05~0.1seconds)
- * Swift and simple installation, by tightening only two screws.

External Handle

IP20: Finger protection.

- Adoption of a safer and easy to operate handle.
- *Complying with protection degree IP65.

IP-20PM with Safety Device

*Complies with protection degree IP20. * Safety device supplied as option.

Specialized for 3-and4-poles use (2 pole incompatible).

*May be modified from front connection to rear connection.

*May be connected with up to nine leads (for PLT).

(Note: Modification by end users not authorized)

- * Isolation function achieved through combination with the breaker unit.
- *Structured to allow relay adjustments after installation as well.
- *Equipped with cylinder key (option) to prevent deliberate operation.

V-Handle

R-Handle

(IP-20PM)

Power Supply Module

Product design which pursues greater use ease by wide variations

IP-20 Terminal Connection

With the SGW, HGW, connection safety has been further elevated. * Standard IP-20 protection

degree secured.

Variable Connections

Compatible with various connection methods. Solderless terminals extending outside the breaker unit on the conventional type have been upgraded to a built-in internal type (see

Diagram 2). Maximum connecting Cable of 185mm² (SGW/HGW).

(Note: Certain models have externally attached terminals)

Handle Locks

With the WS Series, ON/OFF locking is possible through the padlock to the breaker unit.

Up to three padlocks may be attached.

*Customers are requested to supply their own padlocks

ON Lock

OFF Lock with 3 Padlock

Intelligent

New system configuration through the use of an intelligent breaker

AE-SS MDU

WSS MDU

Working through a sequence CC-Link interface unit makes it possible to collect electrical circuit measuring data.

installation work.

Terminal Cover

Major improvements have been made in front connection terminal safety. *With terminal covers, IP40 protection degree is ensured.

The 32,63AF includes installation

hooks to IEC rails as standard

equipment, greatly simplifying

250AF Product Skelton

1 MCCB 2 Relay unit (Thermal type) (RT) 3 Relay unit (Electronic type) (RE) Relay unit (Magnetic only type) (RM) 5 Relay unit (Switch-disconnector type)* 6 Super current-limiting unit* 7 Solderless (Box) terminals 8 Front connection nuts 9 Rear connections 10 Insulating barrier (BA-F) 11 Small terminal cover (TC-S) 12 Large terminal cover (TC-L) 13 Rear terminal cover (BTC) 14 Plug-in base (PM) 15 Connections for Plug-in 16 Mechanical interlock device (MI) 17 OFF Lock with 3 Padlock (HLF3) 18 Handle lock device (LC/HLF/HLN/HLS) 19 Variable-depth operating handle (V type) 20 Rotary operating handle (R type) 21 Electrical operation device (MD) 22 Alarm/Auxillary switch device (AL/AX) 23 Under voltage trip device (UVT) 24 Shunt trip device (SHT)

Note *: All the accessories are field mounting type except No.5 and 6.

1. Series Configuration and List of Product Models

Series Configuration

	Molded-case circuit breakers													
NF-C Economy type	NF-S Standard type	NF-H High-performance type	NF-U Current limiting-type ultra breaker											

Earth-leakage circuit breakers												
NV-C Economy type	NV-S Standard type	NV-H High-performance type	NV-U Ultra current-limiting type									

	Miniature circuit breakers													
BH	BH-P	BH-S	BH-PS	BH-D6	BV-D	KB-D								
	NEMA-type for	consumer unit		DIN-seri	DIN-series for general consumer unit									
			1.00											

Se	Frame A ries	32 (30)	63	125 (100)	160	250	400	630	800	1000	1250 (1200)	1600	2000	2500	(3200)	4000	
er	NF-C Economy type	NF30-CS	NF63-CW	NF125-CW		NF250-CW	NF400-CP	NF630-CP	NF800-CEP								
break				NF125-SW	NF160-SW	NF250-SW	NF400-SP	NF630-SP	NF800-SDP	NE4000.00	NF1250-SS		NE2000 C		NE0000 0	NE4000 C	
ircuit	Standard type	1500 014	INF03-3VV	NF125-SGW	NF160-SGW	NF250-SGW	NF400-SEP	NF630-SEP	NF800-SEP	INF 1000-55	(NF1200-SS)	INF 1000-55	INF2000-5	100000	NF3200-5	INF4000-5	
case c	NF-H High-performance type	NF32-SW		NF125-HW	NF160-HW	NF250-HW	NF400-HEP	NF630-HEP	NF800-HEP	154000 000	NE4050.00D		NEE 2000 C	NF2500-S	NEE2000 0		
-papic		NF63-HW	INF03-FIV	NF125-HGW	NF160-HGW	NF250-HGW	NF400-REP	NF630-REP	NF800-REP	NF1000-SSD NF1250-SS	NF1250-55D	NF 1000-55D	INFE2000-5		INFE3000-5	INFE4000-5	
ž	NF-U Ultra current-limiting type			NF125-RGW NF125-UGW		NF250-RGW NF250-UGW	NF400-UEP	NF630-UEP	NF800-UEP		NF1250-UR						
ter	NV-C Economy type	NV30-CS	NV63-CW	NV125-CW		NV250-CW	NV400-CP	NV630-CP									
break		NV32-SW		NIVCO CIM	NV125-SW		NV250-SW	NV400-SP	NV630-SP								
circuit	Standard type		NV63-SW	NV100-SEP		NV250-SEW	NV400-SEP	NV630-SEP	NV800-SEP		NI/4000 0D						
kage (NV-H High-performance type		NV32-SW		NV125-HW		NV250-HW	NV400-HEP			INV 1000-56	NV 1200-5D					
rth-lea			NV63-HVV	NV100-HEP		NV250-HEW	NV400-REP	NV630-HEP	NV800-HEP								
Ea	NV-U Ultra current-limiting type			NV125-RW		NV250-RW											
otection ker	МВ	MB30-CS	MB50-CW	MR100.SW		MR225-SW											
Motor-prote braker	Motor breaker	MB30-SW	MB50-SW	100-200		MB225-SW											

List of Product Models (The models shown in shaded boxes are WS series.)

UL listed	UL listed products												
NF-UL UL489 Listed Molded-case circuit breaker	NV-UL Earth-leakage protector UL489 Listed Molded-case circuit breaker												
	(Details will be available)												

Ser	ies Frame A	50	100	150	225	250	400	600	
	UL489 Listed	NE50-SWIL	NF100-CWU	NE-SEW	NE225-CWIL	NF-SJW	NE-SKW	NE-SI W	
	Molded-case circuit breaker	111 30-3000	NF100-SWU		141 223-000	NF-HJW		INI -OLW	
UL listed products	Earth-leakage protector UL489 Listed Molded-case circuit breaker (Details will be available upon request.	NV50-SWU	NV100-SWU		NV225-CWU				

Miniature Circuit Breaker

AF	60	100					
	В	Н					
БЦ	BH-P						
БП	BH-S						
	BH-PS	—					

DIN Series

AF	63 and less
МСВ	BH-D6
RCCB	BV-D
RCBO	BV-DN
Isolating switch	KB-D

Circuit Protectors

AF	30 and less
	CP30-BA
СР	CP-B
	CP-S

2. Detailed Specifications Molded-Case Circuit Breakers

Series						C series		S se	eries	H series	
Group					WSS G1	WSS G2	WSS G3	WS	S G1	WSS G1	
Frame Size					63	125	250	32	63	63	
Type name				Photo	Available soon			Available soon	Available soon	Available soon	
				WS series	NF63-CW	NF125-CW	NF250-CW	NF32-SW	NF63-SW	NF63-HW	
Rated current In	(Amp.)				3 4 6 10 16 20 25 32 40 50 63	50 63 80 100 125	125 150 175 200 225 250	3 4 6 10 16 20 25 32	3 4 6 10 16 20 25 32 40 50 63	10 16 20 25 32 40 50 63	
Rated ambient te	mperature ()			40 40		40	40	40	40	
Number of poles	`				2 3 2 3		2 3	2 3	2 3 4	2 3 4	
Rated insulation	voltage Ui (\	/)			600	600	600	600	600	690	
		/		690V 525V	-			-		2.5/1	
Rated short-circuit breaking capacities (kA)	IEC60 (Icu)947-2 /lcs)	AC (50/60Hz)	300V 440V 415V 400V 380V 230V 250V	$ \begin{array}{c} 2.5/1 \\ 2.5/1 \\ 5/2 \\ 5/2 \\ 7.5/4 \\ 2.5/1 \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ - \\ -$	10/5 10/5 10/5 10/5 10/5 30/15 7.5/4 *1	10/5 15/8 18/9 18/9 18/9 35/18	2.5/1 2.5/1 2.5/1 5/2 5/2 7.5/4 2.5/4	7.5/4 7.5/4 7.5/4 7.5/4 7.5/4 15/8 7.5/4	10/5 10/5 10/5 10/5 25/13 7 5/4	
			DC	300V	_	-	-	-	-	-	
Suitability for isol	ation										
Utilization catego	iry				A	A	A	A	A	A	
Reverse connect	ion (terminal	is unmarked	d)		-	^		^			
Rated impulse wi	ated impulse withstand voltage Uimp (KV)				6	8	6	6	6	6	
Pollution degree	Pollution degree				2	3	2	2	2	2	
	without current				10,000	10,000	8,000	10,000	15,000	15,000	
Number of operation	4:			440V-In/2	6,000	6,000	4,000	6,000	15,000	15,000	
Number of opera	ling cycles		with current	440V-In	6,000	6,000	4,000	6,000	8,000	8,000	
	690V-			690V-In/2	-	-	-	-	-	-	
				690V-In		-	-	- 75	-	-	
				a	50 75	60 90	105	50 75	50 75 100	50 75 100	
Overall dimension	verall dimensions (mm)			D	130	130	C01	130	130	130	
				C	68	68	68	68	68	68	
	1			са	90	90	92	90	90	90	
		Front	Solderless (box) t	orminal (SL)							
	Fixed	FION	Bushar torminal		_			-	-	-	
Installation		Beer	Dusbai terminai	(P)	_	-	_	-	-	_	
and		Real		(D) (DM)							
connections	Plug-in	Rear/front	IP20	(PM-ID)							
	IEC 35mm	Mounting h	ounting hook (option)		_		_	_	_	_	
	rail	Adaptor (or	otion)				_				
	Alarm switc	h	Suony	(Δ1)	_		_	-	_	-	
	Auxiliance	viteb									
Cassette-type	Shunt trin	witchi		(707) (TH2)							
accessories			Non-Synchronous Cl	osing (LIVT-N)							
	Undervoltage	e trip (UVI)	Synchronous Clos	ing (UVT-S)	_		_	_	_	_	
	with Lead-v	vire termina	l block	(SLT)							
Accessorie's	with Interna	al terminal ty	/ne	(02.)	_	_			_	_	
connection	with Flying	leads	F -								
	Pre-alarm (contact out	out) *3	(PAL)	-	-	_	-	-	-	
Built-In	Overcurren	t trip alarm	*3	(OAL)	-	-	-	_	-	-	
accessories	Cylinder key	/ lock			-		-	_	-	-	
			Ductoroof	(S)					-	-	
	Enclosure		Dusipiool	(1)					-	-	
			Waterproof	(W)	-	-		-			
	Electrical o	peration dev	vice	(MD)	-	-		-	-	-	
	Mechanical	interlock	Slide plate type	(MI-S)							
			Walking beam ty	pe (MI-W)	-	-	-	-	-	-	
	Handle lock	device	Handle lock	(HL)							
				(HL-S)							
External	LOCK COVER			(LC)							
accessories	External	Door moun	iting	(V)	-	-		-			
	operating		•	(5)							
	handle	Mounted or	n breaker	(R)	-			-	-	-	
	Insulating	Retween n	hase	(RA-F)							
	barrier	To ground	1436	(BA-C)							
		Large									
		Small		(TC-S)							
	Terminal	Transparor	ot	(TTC)							
	cover	for rear cor	nection	(FTC)							
		for plug_in		(PTC)							
		.or plug-iff							L	I	
				G/I							
Marine approval	Available	soon		BV							
a service of the second				DNV					- 1	- 1	
				AB					-	-	
Automatia tripsia	a dovice				Hydraulic-	Thermal-	Thermal-	Hydraulic-	Hydraulic-	Hydraulic-	
	y device				magnetic	magnetic	magnetic	magnetic	magnetic	magnetic	
Trip button					Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	

Notes *1: Use two poles in the case of three-pole or four-pole products. In addition, wiring as shown to the right allows the three poles to be used for up to 400V DC and the four poles to be used for up to 500V DC.
*2: Use two poles in the case of three-pole or four-pole products. In addition, wiring as shown to the right allows the three poles to be used for up to 500V DC and the four poles to be used for up to 600V DC.
*3: Both PAL and OAL is not available. Only one specified.

 		-							
S series WSS G2	H series WSS G2	S se	eries S G4	H se	eries S G4	WSS G3	S series WSS	G4	
125	125	12	25	12	25	1000 000	160	- 64	
			a l						
NF125-SW	NF125-HW	NF125-SGW RT	NF125-SGW RE	NF125-HGW RT	NF125-HGW RE	NF160-SW	NF160-SGW RT	NF160-SGW RE	
16 20 32 40 50 63 80 100 125	16 20 32 40 50 63 80 100	16–25 25–40 40–63 63–100 80–125	16–32 32–63 63–100 75–125	16–25 25–40 40–63 63–100 80–125	16–32 32–63 63–100 75–125	125 150 160	125–160	80–160	
40 2 3 4	40 2 3 4	40 2 3 4	40 3 4	40 2 3 4	40 3 4	40 2 3 4	40 2 3 4	40 3 4	
690 8/4	690 10/5	690	690	690	690	690	690 8/8	690	
18/5	22/11	22/22	22/22	35/35	35/35	-	22/22	22/22	
18/9	30/15	30/30	30/30	50/50	50/50	15/8	30/30	30/30	
25/13	50/25	36/36	36/36	65/65	65/65	25/13	36/36	36/36	
30/15 50/25		36/36	36/36	75/75	75/75	30/15	36/36	36/36	
 30/15 50/25		36/36	36/36	75/75	75/75	30/15	36/36	36/36	
15/8 *1	40/20 *1	-	-	-	-	15/8 *1	-	-	
_	_	20/20 *2	-	40/40 *2	-	-	20/20 *2	-	
A	А	A	А	A	А	A	A	А	
8	8	8	8	8	8	6	8	8	
3	3	3	3	3	3	2	3	3	
20,000	20,000	40,000	40,000	40,000	40,000	4,000	30,000	30,000	
10,000	10,000	30,000	30,000	30,000	30,000	4,000	20,000	20,000	
1,000	1,000	1,000	1,000	1,000	1,000	_	1,000	1,000	
60 90 120	90 120	105 140	105 140	105 140	105 140	105 140	105 140) 105 140	
130	130	165	165	165	165	165 68	165	165	
90	90	111	111	111	111	92	111	111	
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	-		-		-				
 							_	-	
Thermal-	Thermal-	Thermal-	Electronic	Thermal-	Electronic	Thermal-	Thermal-	Electronic	
Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	
1. 66.55	1. 1. 1. 1. 1.		1. 66.22	1.0522	1. 66.22	1.1.6.2.2			

2. Detailed Specifications Molded-Case Circuit Breakers

Series							ŀ	I series				S serie	es			
Group						WSS G3		WS	S G4		WSS G3		WS	S G4		
Frame Size								160				250				
Type name					Photo											
					WS series	NF160-HW	NF	160-HGW RT	NF160-H RE	IGW	NF250-SW	NF250-S RT	GW	NF250 R)-SGW	
Rated current In	(Amp.)					125 150 160	1	25–160	80–16	60	125 150 175 200 225 250	125-160 160-250		125-	-250	
Rated ambient te	emperature ()				40		40	40	4	40	40		4	10	
Number of poles		0				2 3 4	2		3	4	Z 3 4	2 3	4	3	4	
Rated insulation	voltage Ui (/)				690		690	690		690	690		6	90	
					690V	5/3		20/20	20/20	0	-	8/8		8	5/8	
Rated short-circuit breaking capacities (kA)	A) IEC60947-2 (Icu/Ics) AC (50/60Hz) DC		AC 440V (50/60Hz) 415V 400V 380V 230V DC 250V 300V		- 30/8 50/13 50/13 50/13 50/13 100/25 40/20 *1	,	35/35 50/50 65/65 70/70 75/75 75/75 100/100	35/35 50/50 65/65 70/70 75/75 75/75 100/10 -	5 0 5 5 5 5 5 00		22/22 30/30 36/36 36/36 36/36 36/36 36/36 85/85	2) 3 3 3 3 5 5	22 30 36 36 36 36 85	2/22 0/30 5/36 5/36 5/36 5/36 5/36 5/85 -		
Cuitability for ingl	lation (3000	-	_	40/40 *2	-		-	20/20	J *Z	-	-	
Sunability for ISO								٨	-						٨	
Utilization catego	ny .		0			A	_	А	A		A	A .		/	А	
Reverse connect	tion (termina	Is unmarked	3)											L		
Rated impulse wi	ithstand volt	age Uimp (k	(V)			6		8	8		6	8			8	
Pollution dearee	ollution degree					2		3	3		2	3			3	
i enement ergitte	without current				12 000		40 000	40 00	0	12 000	25.00	0	25	000		
	440V-			$440V_{-lp/2}$	4 000		30,000	30,00	0	4 000	15.00	0	15	000		
Number of opera	umber of operating cycles with current			4401/11/2	4,000		30,000	30,00	0	4,000	13,00	0	13,	000		
	with current			440V-In	4,000		20,000	20,00	10	4,000	10,00	0	10,	,000		
					690V-In/2	1,000		1,000	1,000	0	-	1,000)	1,0	000	
					690V-In	1,000		1,000	1,000	0	-	1,000)	1,0	000	
			, a	, ca	а	105 140	0 10	5 140	105	140	105 140	105	140	105	140	
Overall dimension	no (mm)			- ' 🛏	b	165		165	165		165	165		1	65	
	ns (mm)		LLh		С	68		86	86		68	86		8	36	
			E P	1	<u> </u>	00		111	111		02	111		1	11	
	1		Sorow		<u> </u>	92					32			-		
			Sciew				_					-				
	Fixed	Front	Solder	less (DOX)	terminai (SL)											
Installation			Busba	ir terminal		-		-	-		-	-		-	-	
and		Rear			(B)											
anu		Rear			(PM)			-	-			-		-	-	
connections	Plug-in	Rear/front	IP20		(PM-IP)	-					_					
	IEC 35mm Mounting h		hook (option)			-		-	-		_	-			_	
	rail	Adaptor (or	ntion)	puony			-	_	_			-				
		Auapter (U	plion		(41)	-	_	-	-			-			_	
	Alarm Switt	<i>.</i>			(AL)		_									
Cassette-type	Auxiliary sv	vitch			(AX)											
accessories	Shunt trip			(SHT)												
	Undorvoltag	o trip (LIV/T)	Non-Sy	nchronous C	losing (UVT-N)			-	-			-			-	
	Undervoltag		Synchr	onous Clos	sing (UVT-S)	_					-					
	with Lead-	vire termina	I block		(SLT)											
Accessorie's	with Interns	al terminal ty	/no		(021)		_									
connection	with Elving	loade	ipo –				-									
	Dra alarra	ieaus			(DAL)		_									
Built-in	Pre-alarm (contact out	put) *3		(PAL)	-		-				-				
accessories	Overcurrer	t trip alarm	*3		(OAL)	-		-			-	-				
	Cylinder key	/ IOCK				-								1		
			Ducto	roof	(S)	-		-	-		-	-		-	_	
	Enclosure		Dusip		(1)					_						
			Waterp	oroof	(W)	-		-		-	-		-		-	
	Electrical o	peration dev	vice		(MD)											
	Montania	liptorlask	Slide p	plate type	(MI-S)											
	Intechanica	Interiock	Walkir	ng beam ty	/pe (MI-W)	-		-	-		-	-		-	-	
				- 11	(HL)											
	Handle loci	< device	Handl	e lock	(HÌ-S)											
	Lock cover				(1.0)											
Eutomol	LOOK OOVER										+					
EXIGINAL	External	Door moun	nting				_									
accessories	operating		-		(3)		_	-	-			-			-	
	handle	Mounted o	n break	er	(R)											
		-			(F)		_									
	Insulating	Between p	nase		(BA-F)				l			I				
	barrier	To ground			(BA-G)											
		Large			(TC-L)											
	Torminal	Small			(TC-S)											
	reminal	Transparer	nt		(TTC)				1					1		
	cover	for rear cor	nection	n	(PTC)				1			1		1		
		for plug in	moouol		(DTC)											
	1	por plug-in			(PIC)	i	_		1		+	1				
					L/R							-			1	
					G/L					_			-		-	
Marine approval	Available	soon			BV	- 1		-		_			-		-	
					DNV	-		- 1		-			-		-	
					AB				+ +	_	+ + <u>+</u>	1	- 1	1	-	
					,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Thermal-	- T	hermal-			Thermal	Therm	al-	+		
Automatic tripping	g device					magnetic	1 n	nametic	Electro	nic	magnetic	magne	tic	Elec	tronic	
Tain husting	-					Factor		agricut	- ·							
I rip button						Equipped	E	quipped	Equipp	ed	Equipped	Equipp	ed	Equi	ipped	
	-															

Notes *1: Use two poles in the case of three-pole or four-pole products. * 1: Use two poles in the case of three-pole or four-pole products. In addition, wiring as shown to the right allows the three poles to be used for up to 400V DC and the four poles to be used for up to 500V DC.
*2: Use two poles in the case of three-pole or four-pole products. In addition, wiring as shown to the right allows the three poles to be used for up to 500V DC and the four poles to be used for up to 500V DC.
*3: Both PAL and OAL is not available. Only one specified.

	H series			U se	ries	
WSS G3	WSS	3 G4	1.	WSS	G4	50
	250					
NF250-HW	NF250-HGW RT	NF250-HGW RE	NF125-RGW RT	NF125-UGW RT	NF250-RGW RT	NF250-UGW RT
125 150 175 200 225 250	125–160 160–250	125–250	16–25 25–40 40–63 63–100	16–25 25–40 40–63 63–100	125-160 160-225	125–160 160–225
40	40	40	40	40	40	40
 2 3 4	2 3 4	<u> </u>	<u> </u>	2 3 4	2 3	2 3 4
5/3	20/20	20/20	25/25	30/30	25/25	30/30
-	35/35	35/35	_	_	125/125	-
30/8	50/50	50/50	125/125	200/200	125/125	200/200
50/13	70/70	70/70	125/125	200/200	125/125	200/200
50/13	75/75	75/75	125/125	200/200	125/125	200/200
50/13	75/75	75/75	125/125	200/200	125/125	200/200
40/20 *1	-	-	-	-	-	-
-	40/40 *2	-	40/40 *2	40/40 *2	40/40 *2	40/40 *2
 A	A	A	А	A	A	A
6	8	8	8	8	8	8
2	3	3	3	3	3	3
12,000	25,000	25,000	50,000	50,000	25,000	25,000
4,000	10.000	10.000	30.000	30.000	10.000	10.000
1,000	1,000	1,000	1,000	1,000	1,000	1,000
 1,000	1,000	1,000	1,000	1,000	1,000	1,000
165	165	165	240	240	240	240
68	86	86	86	86	86	86
 92	111	111	111	111	111	111
-	-	_	-	-	-	-
	_	_				
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 -				-		
-				-	-	'
I hermal- magnetic	I hermal- magnetic	Electronic	I nermal- magnetic	I hermal- magnetic	I hermal- magnetic	I nermal- magnetic
 Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	Equipped
				1.11.1.1		

2. Detailed Specifications Earth-Leakage Circuit Breakers

Series						0		0.5		LL a a dia a	
Series						C series		5 50	enes	H series	
Group					WSS G1	WSS G2	WSS G3	WS	S G1	WSS G1	
Frame size					63	125	250	32	63	63	
Type name				Photo	Available soon	11030		Available soon	Available soon	Available soon	
				WS series	NV63-CW	NV125-CW	NV250-CW	NV32-SW	NV63-SW	NV63-HW	
Rated current In	(Amp.)					63 80 100 125		6 10 16 20			
Botod ombiont to	mooroturo	(00)			30 03	40	200 223 230	23 32	30 03	30 03	
Number of poles	emperature	(0)			40	40	40	40	40	40	
Number of poles					3	3	3	3	3	3	
Rated operationa	al voltage U	e (AC V)			230–400–440 Multi-voltage type	Z30-400-440 Multi-voltage type	230–400–440 Multi-voltage type	Z30-400-440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	
High-speed type		Rated cur	rent sensitivity I r	n (mA)	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	
		Max. oper	rating time at 51 n	i (S)	0.04	0.04	0.04	0.04	0.04	0.04	
		Rated cur	rent sensitivity I r	n (mA)	-	100•300•500 Selectable	100•300•500 Selectable	-	-	_	
Time-delay type		Max. oper	rating time at 21 n	ı (s)	-	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	-	-	-	
		Inertial no	n-operating time a	t 21 n (s)	-	0.1•0.5•1.0	0.1•0.5•1.0	-	_	-	
Earth-leakage in	Earth-leakage indication system				Button	Button	Button	Button	Button	Button	
y				AC440V	2.5/1	10/5	15/8	5/2	7.5/4	10/5	
Rated breaking of	capacity (kA)		AC400V	5/2	10/5	18/9	5/2	7.5/4	10/5	
IEC60947-2 (Icu	/lcs)	,		AC380V	5/2	-	-	5/2	7 5/4	10/5	
	AC230					30/15	35/18	10/5	15/8	25/13	
	without current					10 000	8,000	10,00	15,000	15 000	
Number of an	without current					6 000	0,000	6,000	15,000	15,000	
under of opera	ung cycles		with current	440V-In/2	0,000	0,000	4,000	6,000	15,000	10,000	
						6,000	4,000	6,000	8,000	8,000	
				a	/5	90	105	/5	/5	/5	
Overall dimensio	ons (mm)			b	130	130	165	130	130	130	
			b a	С	68	68	68	68	68	68	
		,		ca	90	90	92	90	90	90	
			Screw terminal								
	Fixed	Front	Solderless (box)	terminal (SL)	-			-	-	-	
le le	i ixeu		Busbar terminal								
Installation and		Rear		(B)							
connections	Diver in	Rear		(PM)							
	Plug-In	Rear/front IP20 (PM-IP			-		-	-	-	-	
	IEC 35mm	Mounting	hook (option)			_	-				
	rail	Adapter (option)		_		_	-	_	-	
	Alarm swit	ch		(AL)							
	Auxiliary s	witch		(AX)							
Cassette-type	Shunt trip			(SHT)	-	_	-	-	-	_	
accessories			Non-synchronous clos	sing (UVT-N)							
	Undervoltag	e trip (UVI)	Synchronous closi	ing (UVT-S)	_		_	-	-	-	
	Insulation	switch		(MG)							
	Earth-leak	age trip ala	rm	(EAL)							
Built-in	Test buttor	module		(TBM)							
accessories	Pre-alarm-	contact out	put	(PAL)	_	_	_	-	-	-	
	Cylinder ke	v lock	r	(174)	_		_	-	_	_	
Accessorio's	with Lead	vire termine	al block	(SI T)				-	-	-	
connection	with Elving	leads		(011)							
		.5005		(9)							
	Enclosure		Dustproof								
			Waterproof	(1)							
	Electrical	neration de	vice	(MD)							
	Moohanical	intorleal	51100	(IVID)	-			-	_		
	wechanical	INTELIOCK	-	(MI)							
	Handle loc	k device	Handle lock								
	Lock cover			(ПС-3)							
	LOCK COVE	1		(LC)							
External	External	Door mou	nting	(V)							
accessories	operating		5	(S)							
	handle	Mounted of	on breaker	(R)	-			-	-	-	
		-		(F)							
	Insulating	Between p	pnase	(BA-F)							
	Damer	I o ground	1	(BA-G)							
		Large		(TC-L)							
	Terminal	Small		(TC-S)							
	cover	Transpare	ent	(TTC)							
	30101	for rear co	onnection	(BTC)							
		for plug-in		(PTC)							
	a dauitee				Hydraulic-	Thermal-	Thermal-	Hydraulic-	Hydraulic-	Hydraulic-	
Automatic trippin	ig aevice				magnetic	magnetic	magnetic	magnetic	magnetic	magnetic	
Trip button					Equipped	Equipped	Equipped	Equipped	Equipped	Equipped	

Note *1: 125A rated current is 3p only.

Rated operational voltage 230-400-440V 195-484V Available voltage range

S series	H series	S se	eries	H se	ries	U series			
WSS G2	WSS G2	WSS	3 G3	WSS	G3	WSS G2	WSS G3		
125	125	25	50	25	0	125	250		
		王 王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王王		1000					
NV125-SW	NV125-HW	NV250-SW	NV250-SEW	NV250-HW	NV250-HEW	NV125-RW	NV250-RW		
16 20 32 40 50 63 80 100 125 *1	16 20 32 40 50 63 80 100	125 150 175 125 150 175 200 225 250 200 225	125–225 Adjustable	125 150 175 200 225	125–225 Adjustable	16 20 32 40 50 63 80 100	125 150 175 200 225		
40	40	40	40	40	40	40	40		
3 4	3 4	3 4	3 4	3 4	3 4	3	3		
230-400-440 Multi-voltage type	230-400-440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type		
30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable		
0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04		
100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable	100•300•500 Selectable		
0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable	0.45•1.0•2.0 Selectable		
0.1•0.5•1.0	0.1•0.5•1.0	0.1•0.5•1.0	0.1•0.5•1.0	0.1•0.5•1.0	0.1.0.5.1.0	0.1.0.5.1.0	0.1.0.5.1.0		
Button	Button	Button	Button	Button	Button	Button	Button		
25/13	50/25	25/13	25/13	50/13	50/13	125/125	125/125		
30/15	50/25	30/15	30/15	50/13	50/13	125/125	125/125		
 -	-	-	-	-			-		
50/25	100/50	50/25	50/25	100/25	100/25	125/125	125/125		
25,000	25,000	12,000	12,000	12,000	12,000	25,000	12,000		
20,000	20,000	4,000	4,000	4,000	4,000	20,000	4,000		
10,000	10,000	4,000	4,000	4,000	4,000	10,000	4,000		
90 120	90 120	105 140	105 140	105 140	105 140	90	105		
130	130	165	165	165	165	191	240		
68	68	68	68	68	68	68	68		
90	90 90		92	92	92	90	92		
				-	-		-		
		_	_		-	-	-		
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- 1	-								
-	-								
 Thermal- magnetic	nermal- Thermal- The lagnetic magnetic mag		Thermal- magnetic Electronic		Electronic	Thermal- magnetic	Thermal- magnetic		
			Lyuippeu	Lyuippeu	счирреч	Equipped Equipped			

2. Detailed Specifications Motor-Protection Breakers

Frame A					30				5	50				100		225		
	Type name			Av	/IB30-S\ ailable s	N pon	Av	MB50-C	W pon	Av	VIB50-SV ailable so	N pon	М	B100-S	W	Ν	IB225-S	W
Rated current In (Amp.) Rated motor capacity: kW Reference ambient temperature 40°C (45°C for marine applications)			l0°C	$\begin{tabular}{ c c c c c c c } \hline A & \hline & 200/220V & 400/440V \\ \hline & & & & & & & & & & & & & & & & & &$		A 45 40 32 25 16 12 10 8	200/220V kW 11 7.5 5.5 3.7 2.2 	400/440V kW 22 18.5 15 11 7.5 5.5 3.7	A 7.1 5 4 2.5 2 1.4 1.2 0.8	200/220V kW 1.5 - 0.75 0.4 - 0.2 - - -	400/440V kW 2.2 1.5 0.75 0.4 -	A 100 90 71 63 45 (40) 32 (25) (16) (12.5)	200/220V kW 22 18.5 15 11 7.5 5.5 3.7 -	400/440V kW 55 45 37 30 22 19 15 11 7.5 5.5	A 225 200 175 150 125	200/220V kW 55 45 37 30	400/440V kW 110 - 90 75 -	
Numb	er of poles			3			3			3			3			3		
Rated	insulation voltage Ui	(V)		500		500			500			500			500			
aking s (kA)	IEC60947-2		440V		2.5/1			2.5/1		7.5/4		25/13			25/13			
ted sh int bre acities	JIS C 8201-2	AC	400V		7.5/4			7.5/4		7.5/4		30/15			30/15			
Circu circu cape	(ICU/ICS)		230V		7.5/4			7.5/4		15/8		50/25			50/25			
su	<u>a</u> ca		а		75		75		75		90			105				
m)			b		130			130			130		130				165	
l s e c	⊨ b a		с		68			68			68			68			68	
ġ			ca		90			90			90			90			92	
Front connection (F)		• 0	Crimp cor	ntact	•	Crimp contact		•	Crimp contact		Crimp contact			Crimp contact		ntact		
met	Rear connection	(B)		•	Round s	tud	•	Round s	tud	•	Round s	tud		Bar stu	d		Bar stu	d
ŏ-	Plug-in	(PM)			•			•			•			•			•	

Remark: The products of which rated current is parenthesized will be produced when an order is placed.

2. Detailed Specifications UL Listed Products

Frame A Type name				10 NF100	00)-CWU	225 NF225-CWU	5 NF50	o -SWU	1 NF10	00 D-SWU	150 NF-SFW	NF	2 -SJW	50 NF-HJV	N	
Photo							Availab	le soon		•						
Rate at an	d current In (A nbient tempera	.mp.) ture 40°C (II	EC30°	C)	50 60	75 100	125 150 175 200 225	5 10 30 4	15 20 0 50	15 20 50 60	30 40 75 100	15 20 30 40 50 60 70 80 90 100 110 125 150	(125) (200 2	150) 175 225 250	125 150 200 225	175 250
Num	ber of poles			,	2	3	3	2	3	2	3	3		3	3	
		Rated v	oltage	(V AC)	24	40	240	24	40	480	Y/277	600Y/347	600	IY/347	600Y/34	7
			600	Y/347V								14		14	18	
(kA)	UL489	AC	4	80V								35		35	50	
ties		70	480`	Y/277V						2	22	35		35	50	
apaci			2	40V	1	0	35	1	0	;	35	65		65	100	
b D		Rated insul	ation volt	tage Ui (V)	6	00	600	60	00	6	90	690	6	690	690	
eaki			6	90V						8	/ 4	8/8	8	/8	15 / 15	•
uit br			5	00V	7.5	/4	10 / 5	7.5	/4	18	/9	30 / 30	30	/ 30	36 / 36	·
-circi	JIS C 8201-2		4	40V	10	/5	15 / 8	7.5	/4	25	/ 13	36 / 36	36	/ 36	50 / 50	1
short	IEC60947-2 (Icu/Ics)	AC	4	15V	10	/5	18/9	7.5	/4	30	/ 15	36736	36	7 36	50 / 50	
ated			4	00V	10	/5	18/9	7.5	/4	30	/ 15	36/36	30	/ 30	50 / 50	
æ			2	20V	30	/ 15	35 / 18	1.5	/ 4	50	/ 15	85 / 85	85	/ 85	100 / 10	10
		DC	25	0\/ *3	75/4		10/5	107.0		15/8		20 / 20	20	/ 20	20 / 20	0 1
Com	patible to AC/E)C *1	20		1.0		1070			•		20720	20	•	20720	
Suita	bility for isolati	on				•	•				•	•		•	•	
Reve	erse connectior	1				•	•		•		•	•		•	•	
				а	60	90	105	50	75	60	90	105		105	105	
Over	all			b	1:	50	165	1:	50	1	50	185		185	185	
(mm)			с	6	8	68	6	8	(68	86		86	86	
				ca	g	0	92	9	0	(90	110		110	110	
Mass	s of front-face t	ype (kg)			0.7	0.95	1.5	0.55	0.75	0.7	0.95	2.0	:	2.0	2.0	
ction	Front	Crimp conta	ct	(F)			•	•			•	•		•	•	
Conne meth	connection	Solderless terminal		(SL)							•	•		•	•	
ž2	Alarm swite	h		(AL)	•		•	•			•	•		•	•	
es	Auxiliary sv	vitch		(AX)		•	•				•	•		•	•	
ssori	Shunt trip			(SHT)			•				•	•		•	•	
Acce	Under-volta	age trip		(UVI)			•				•	•		•	•	
-	Vertical lead	-wire termina	lunit	(SLT) (MI)			•				•	•		•	•	
	Handlo loci	dovico		(IVII)			•				-	•		•	•	
*2		(device		(F			•				•	•		<u> </u>	•	
ories	Operating h	nandle	-	s		•	•		•		•	•		•	•	
cess	-pg-		-	V		•	•		•		•	•		•	•	
al ac	Insulating b	arrier		(IB)		•	•				•	•		•	•	
ttern.	Terminal	arge		(TC-L)	•)	•				•	●		•	•	
ŵ	cover S	mall		(TC-S)			*4									
	IEC 35mm	rail fixture	1					Supplied :	standardly							
Over current trip means				Ther mag	mal - netic	Thermal - magnetic	Hydr mag	aulic- netic	The mag	rmal - gnetic	Thermal - magnetic	Thermal ma	adjustable - gnetic	Thermal adjus magnetic	table - c	
Trip	button				Equi	pped	Equipped	Equi	pped	Equ	ipped	Equipped	Equ	uipped	Equippe	d
ΤÜV	type approval						•				•	۲		•	٠	

Notes: *1 The trip action characteristics differ between AC and DC for products that are compatible to both AC and DC.
*2 Specifications for products with a CE mark differ from those for general-purpose products. Details will be available upon request.
*3 Use two poles among the three poles in the case of three-pole products. In addition, wiring as shown to the right allows the models of NF100-CWU, NF100-SWU and NF225-CWU to be used for up to 400 V DC and the models of NF-SFW, NF-SJW, and NF-HJW to be used for up to 500 V DC.
*4 The standard configuration contains a protection cover and adopts the IP20 (finger protection) structure.

Remark: The products of which rated current is parenthesized will be produced when an order is placed.

3. MDU Breaker (Measuring Display Unit)

■Summary

The circuit breaker incorporates a digital Measuring Display Unit (MDU). It can measure and display a range of circuit condition data for more efficient energy management.

Features

- •Measuring and displaying the load current, line voltage, harmonic current, power, electric energy and power factor.
- •Direct connection to open network CC-Links is possible.
- •The measuring VT and CT are installed within the circuit breaker, thus offering savings on space and wiring.

■Appearance

■MDU breaker product lineup and measuring display items

Applicable	type MCCB
Measurement and display items	NF250-SWM
Load current for each phase: present value, demand value, maximum demand value	•
Line voltage: present value	•
Harmonic current: 3, 5, 7, 11, 13, 17, 19th, total harmonics Present value, demand value, maximum demand value	•
Power: present value, demand value, maximum demand value	•
Electric energy: electric energy, time electric energy, maximum time electric energy	•
Power factor: present value	•

■Specifications

Series				S series					
Group				WSS MDU					
Frame size				250					
Type name				NF250-SWM					
Rated current In	(Amp.)			125 150 175 200 225 250					
Rated ambient te	emperature (°C)			40					
Number of poles				3,4					
Supply system				3ø3W, 1ø3W for 3 poles, 3ø4W for 4 poles (1ø2W available for 3 poles)					
Rated insulation	voltage Ui (V)			690					
			500V	15/8					
			440V	25/13					
Rated short-		AC (50/60Hz)	AC (50/60Hz)	415V	30/15				
circuit breaking	IEC60947-2			400V	30/15				
capacities (kA)	(100/103)			(00/00112)	(30/00112)	(00/00112)	(00/00112)	(50/00112)	380V
			240V	50/25					
			230V	50/25					
Connection				Front type (F), Rear type (B) *1					
Pul		Pulse output		Solid-state relay (SSR), no-voltage a contact, DC24V/AC100–200V 20mA Output pulse unit: 1–10–100–1000–10000kWh/pulse set, pulse width 0.35–0.45 sec.					
	,	CC-I	ink	Load current, Line voltage, Harmonic current, Power, Electric energy, Power factor					
Maximum measuring current (Amp.)				500					
Maximum measu	iring voltage			690V AC					
MDU control pov	ver supply			(For 100–240V AC/DC, allowable voltage range: 85%~110%) 12VA (Use a fuse with a 4A rated current or larger) *3					

Notes: *1 Apply the MDU panel mounting type when the breaker is to be on the back. *2 With pulse output attached type and CC-Link attached type cannot be used at the same time. *3 Use a separate power supply when CC-Link attached type is used. Use (insulating transformers) (12VA/unit) when connecting directly to the main circuit.

4. Connection Method

1. Connection Types

Table 4-1: Connection Types

The front connection model will be delivered unless otherwise specified. Notice, however, that you can convert the front connection model to other types (excluding the plug-in) by using an appropriate connection component, which is separately available.

Note *1: Rear studs are bar studs for the models of 125A, 160A and 250A of frame size, and round studs for other types of models.

2. Connection Accessories

Table 4-2: List of Connection Accessories

Type name		Solderless terminal (SL)	Rear studs (B-ST)	Plug-in (PM) *1
NF32-SW, NF63-CW/SW/HW	2P		ST-05SW2	PM-05SW2
NF32-SW, MB30-SW, MB50-CW/SW, NF63-CW/SW/HW, NV32-SW, NV63-CW/SW/HW	3P		ST-05SW3	PM-05SW3
NF63-SW/HW	4P		ST-05SW4	PM-05SW4
NF125-CW/SW	2P		ST-1SW2	PM-1SW2
	5	SL-1SW4	QT_1UM/2	PM-1HW2
	28		31-11102	PM-1UW2
NF125-CW/SW/HW, MB100-SW, NV125-CW/SW/HW	30	SI -1SW/3	ST-1SW/2	PM-1SW3
NF125-RW/UW, NV125-RW		3L-13W3	31-13003	PM-1UW3
NF125-SW/HW/UW, NV125-SW/HW	45	SI 1SW/	CT 1010/4	PM-1SW4
NF125-UW	4P	3L-13W4	31-131/4	
NF250-CW/SW/HW, NF160-SW/HW	2P	SL-1SW4	ST-28W/2	PM-2SW2
NF250-CW/SW/HW, MB225-SW, NF160-SW/HW, NV250-CW/SW/HW/RW/SEW/HEW	3P		31-231/2	DM 20W/2
NV250-RW		SL-20W3	ST-2UW3	F101-23003
NF250-SW/HW, NF160-SW/HW, NV250-SW/HW/SEW/HEW	4P	SL-1SW4	ST-2SW4	PM-2SW4
NF250-SGW/HGW, NF160-SGW/HGW, NF125-SGW/HGW	20			PM-2GSWIP2 *2
NF250-RGW/UGW, NF125-RGW/UGW		3L-203W4	51-265002	PM-2SW2
NF250-SGW/HGW, NF160-SGW/HGW, NF125-SGW/HGW	0.0		ST.2CSW/2	PM-2GSWIP3 *2
NF250-RGW/UGW, NF125-RGW/UGW		3L-203W3	51-265005	PM-2SW3
NF250-SGW/HGW, NF160-SGW/HGW, NF125-SGW/HGW	45	SL-2GSW/4	072001//4	PM-2GSWIP4 *2
NF250-UGW, NF125-UGW	⁴ P	31-2031/4	312GSW4	

Notes: *1 You can use the plug-in terminal unit (PM) when the wiring of terminal units is required in advance, and the delivery of both the main body and the

components at the same time, which is normal, is not allowed. Furthermore specify the nonuse of plug-in terminal (PM-N) for the connection of circuit breaker. *2 IP20 with safety device.

.

3. Connection of Line and Load

The standard wiring of line and load on the circuit breaker is (a) normal connection shown on the right. Avoid the wiring shown in (b) reverse connection, which may lead to the decrease in breaking performance. However, the reverse connection is allowed for the following models (except NF and NV models with MDU).

Normal connection (a) Reserve connection (b)

Normal and reverse connection methods

1. Accessories Table 5-1: Accessories

Ir	nternal accessories	Function	Applicable models	Cassette-type of accessories				
AL	Alarm switch	A switch that electrically indicates the trip status of the circuit breaker.	NF-C•S•H•U,	•				
AX	Auxiliary switch	A switch that electrically indicates the ON-OFF status of the circuit breaker.	and MB series	•				
SHT	Shunt trip	A device that electrically trips the circuit breaker from a remote distance. Permissible working voltages are 70 to 110% of the AC rated voltage or 70 to 125% of the DC rated voltage.	NF-C•S•H•U and MB series	•				
UVT	Undervoltage trip	A device that automatically trips the circuit breaker if the voltage is lowered. Working voltages are 70 to 35% of the UVT rated voltage. When the voltage recovers to 85% or higher, you can reset the device and put into operation.	NF-C•S•H•U, (Note 1) NV-C•S•H•U and MB series	•				
EAL	Earth-leakage alarm switch	A switch that electrically indicates the trip status of the earth leakage circuit breaker caused by a ground fault. This switch is available only for models with the vertical lead-wire terminal unit (SLT).	NV-C•S•U	-				
TBM	Test button module	This module allows you a remote testing by applying a voltage. An external sequence common to SHT can be used. (The standard configuration requires the vertical lead-wire terminal unit (SLT).)	NV-C•S•U	-				
MG	Insulation switch	The incorporation of this switch enables the measurement of insulation resistance between the terminals of the load with the circuit breaker being turned OFF.	NV-C•S•U	-				

Note: (1) Models NV250-SEW/HEW are excluded.

Remark: (1) Accessory terminals are marked by both IEC-based terminal symbols and conventional symbols, like 98/ALa.

2. Switch Operation and Rating

Table 5-3: AX Switch Operation

Circuit breaker status	AX switch contact		
OFF or Trip	14 / AXa (open) 12 / AXb (closed) 11 / AXc		
 ON	14 / AXa (closed) 12 / AXb (open) 11 / AXc		

Table 5-4: EAL Switch Operation

Circuit breaker status	EAL switch contact		
Over current trip,	EALa (open)		
ON, OFF	EALC		
	EALa (closed)		
Ground fault trip	EALc		

Table 5-5: MG Switch Operation

Table 5-6: AL and AX Switch Rating

		AC		DC			
Switch type	Voltage	Curre	nt (A)	Voltage	Current (A)		
	(V)	Resistive load	Inductive load	(V)	Resistive load	Inductive load	
	460	-	-	250	0.2	0.2	
S	250	3	2	125	0.4	0.4	
	125	5	3	30	4	3	

Please contact us for applications in the field of smaller current values.

Table 5-7: EAL Switch Rating

	AC						
	Voltage	Current A					
	(V)	Resistive load	Inductive load				
	200	3	2				
	100	3	2				

A control power supply (compatible to 100 and 200V AC) is required; see the diagram on the right showing its wiring. (The permissible range of voltage of the control power supply is 80 to 242V AC, and the power requirement is 10VA.)

3. Combinations of	Accessories	Breaker handle	●AL OAX SHT or UVT
		Lett pole - Right pole	MG ↓EAL → TBM → Direction of outgoing lead wire
Table 5-8: Combinations of Acces	ssories		Cassette-type accessories
Series Type name Number of Poles	NF-C • S NF32-SW NF63-CW/SW/HW NF125-CW/SW	• H • U, MB NF32-SW(3P) NF63-CW/SW/HW(3P) NF125-CW(3P), NF125-SW(3P, 4P) NF125-HW, NF125-SGW/HGW NF125-RGW/UGW NF160-SW/SGW/HW NF250-CW/SW/HW NF250-SGW/HGW NF250-SGW/HGW MB300-SW, MB205-CW/SW MB100-SW, MB225-SW	NV-C • S • H • U NV32-SW NV63-CW/SW/HW NV125-CW/SW/HW NV250-CW/SW/HW NV250-SEW/HEW NV125-RW, NV250-RW
Accessories	2-pole	2-pole, 3-pole, 4-pole	2-pole, 3-pole, 4-pole
AL		← 1 2 →	←
AX	[○ →	$\leftarrow 1 2 \rightarrow$	← O
AL+AX	$\bigcirc \rightarrow$	(Note 1)	(Note 1)
SHT or UVT	(Note 2)	(Note 2 (Note 3	(Note 2) (Note 4) (Note 6)
AL+SHT or UVT		(Note 2	
AX+SHT or UVT		(Note 2)	
AL+AX+SHT or UVT		(Note 1 (Note 2	
MG			
AL+MG			
AX+MG			
EAL			(Note 5)
ТВМ			•

Notes: (1) Second AX can substitute the AL on the left-pole.
(2) Models with UVT require a UVT voltage module to be installed on the lead-wire terminal unit. (No such voltage module is required for SHT.) Part of UVT accessories is not of cassette type. (Details will be available upon request.)
(3) UVTs for left-pole installation can be produced, if specified, for frame current values of 32, 63 and 125A (excluding SGW/HGW/RGW/UGW).
(4) SHT cannot be installed.
(5) EALs are available only for models with the vertical lead-wire terminal unit (SLT). Specify a control power supply of either 100 or 200 V AC.
(6) Models NV250-SEW/HEW are not allowed to install the UVT device.

Remarks: (1) Circled numbers indicate the order of installation.
(2) Accessories of EAL, and TBM can be installed independent of installations of AL, AX, and MG. (Two units among EAL, and TBM cannot be installed at the same time.)

4. Shunt Trip (SHT)

Table 5-9: Standard Coil Rating

	Queine	Cut-off		Input power requir	ement (VA) (Note 1)	Operating time (ma) (Nets 2)
	Series	switch	voitage (V)	AC	DC	Operating time (ms) (Note 2)
NF-C+S+H+U	32(30)+63A Frame 125A Frame (NF125-SGW/HGW/RGW/UGWare excluded)		AC100-240 380-550	50		15 or loss
NF-C•S•H•U MB	160+250A Frame NF125-SGW/HGW/RGW/UGW	- Equipped	380-550 (Compatible to 50 and 60Hz.) DC100-125	120	60	10011033

Notes: (1) Secure a sufficient input power so that the voltage will not drop below the permissible lower working voltage (70% of the lowest rated voltage). (2) The operating time denotes the time from when the rated voltage is applied to SHT until when the main contact of the breaker starts to open.

5. Undervoltage Trip (UVT)

Table 5-10: Standard Coil Rating

Series	Voltage (V) (Note 1)	Input power (VA)	Operating time (ms) (Note 2) (Note 3)
All models	AC100-110/120-130 selectable 200-220/230-250 selectable 380-415/440-480 selectable (Compatible to 50 and 60Hz.) DC100/110 selectable	5	30 or less

Notes: (1) A desired voltage can be selected by changing the terminal wiring.

(2) The operating time denotes the time from when no voltage is applied to UVT until when the main contact of the breaker starts to

open. (3) Time-delayed types can be produced. Details will be available upon request.

6. Test Button Module (TBM)

- The effect of pressing the test button on the breaker main body is produced while the input control voltage is applied. (Apply the voltage for more than two seconds for the breaker main body of time-delayed NV models.)
- The model with the vertical lead-wire terminal unit (SLT) is standard.

Table 5-11

Note: (1) The specifications of 100-240V AC/100-240V DC are standard unless otherwise specified. The specifications of 24 V DC are available if requested.

• UVT Voltage Module The UVT voltage module is normally installed on the vertical lead-wire terminal unit (SLT). (A separatemount type can be produced

upon request.)

UVT Voltage Module Wiring Diagram (Lead-Wire Connection)

7. Lead-wire Specifications

Table 5-12

Туре	Size	Length	Marking	Ring-mark example
Heat- resistant wire	0.5mm ²	(Note 1) 450mm	A ring-mark marked by the terminal symbol is attached to each lead-wire.	98/ALa ,96/ALb ,95/ALc C1/S1 ,C2/S2

Note: (1) The length is 400 mm for the model of four-pole, right-pole installation.

• Lead wires are normally extended laterally.

• Grooves are provided standardly on the side face of the breaker, allowing the extension of the lead wires along them. (Note 1)

Note: (1) The models of NF125-SGW/HGW/RGW/UGW, NF160-SGW/HGW, NF250-SGW/HGW/RGW/UGW are excluded.

8. Internal Terminal Type (INT)

• This unit is an internal accessory that is provided with terminal screws for lead-wire connection.

Remark: (1) Available for the models of NF125-SGW/HGW/RGW/UGW, NF160-SGW/HGW, NF250-SGW/HGW/RGW/UGW.

9. Vertical Lead-wire Terminal Block (SLT)

- The circuit beaker can be mounted, being closely fitted to the unit.
- Terminal screws are arranged in a zigzag pattern, and screws can be tightened further after wiring.
- A terminal cover is provided standardly.
- This unit supports the models of front connection, rear connection, and plug-in type (excluding PLT).

10. Cassette-type Accessories

• Cassette-type of accessories can be mounted onto and demounted from the circuit breaker by users themselves.

Table 5-13: Cassette Types of Accessories

Appliaghte models		Kind of accessories								
Applicable models	Group name	AL	AL AX AL + AX SHT (Note 1)		SHT (Note 1)	UVT (UVTN or UVTS) (Note 2)				
NF32-SW , NF63-CW/SW/HW NV32-SW , NV63-CW/SW/HW MB30-SW , MB50-SW	05	AL-05SWL(S) AL-05SWR(S)	AX-05SWL(S) AX-05SWR(S)	ALAX-05SWL(S) ALAX-05SWR(S)	SHTA240-05SWR(S) SHTA550-05SWR(S) SHTD125-05SWR(S)	UVTNA130-05SWR(S) UVTNA130-05SWL(S) UVTNA250-05SWR(S) UVTNA250-05SWL(S)	UVTNA480-05SWR(S) UVTNA480-05SWL(S) UVTND110-05SWR(S) UVTND110-05SWL(S)			
NF125-CW/SW/HW NV125-CW/SW/HW/RW MB100-SW	1	AL-1SW AL-1SWLS AL-1SWRS	AX-1SW AX-1SWLS AX-1SWRS	ALAX-1SW ALAX-1SWLS ALAX-1SWRS	SHTA240-1SWR(S) SHTA550-1SWR(S) SHTD125-1SWR(S)	UVTNA130-1SW UVTNA130-1SWRS UVTNA130-1SWRS UVTNA250-1SW UVTNA250-1SWRS UVTNA480-1SWLS UVTNA480-1SWRS UVTNA480-1SWLS UVTNA480-1SWLS	UVTND110-1SWRS UVTND110-1SWLS UVTSA130-1SW UVTSA130-1SWRS UVTSA250-1SW UVTSA250-1SWRS UVTSA480-1SWRS UVTSA480-1SWRS UVTSD110-1SW			
NF250-CW/SW/HW NF160-SW/HW NV250-CW/SW/HW/RW/SEW/HEW	2	AL-2SWL(S) AL-2SWR(S)	AX-2SWL(S) AX-2SWR(S)	ALAX-2SWL(S) ALAX-2SWR(S)	SHTA240-2SWR(S) SHTA550-2SWR(S) SHTD125-2SWR(S)	UVTNA130-2SWR(S) UVTNA130-2SWL(S) UVTNA250-2SWR(S) UVTNA250-2SWL(S)	UVTNA480-2SWR(S) UVTNA480-2SWL(S) UVTND110-2SWR(S) UVTND110-2SWL(S)			
NF250-SGW/HGW/RGW/UGW NF160-SGW/HGW NF125-SGW/HGW/RGW/UGW	2G	AL-2GSWL(S) AL-2GSWR(S) AL-2GSWN	AX-2GSWL(S) AX-2GSWR(S) AX-2GSWN	ALAX-2GSWL(S) ALAX-2GSWR(S) ALAX-2GSWN	SHTA240-2GSWR(S) SHTA550-2GSWR(S) SHTD125-2GSWR(S) SHTA240-2GSWRN SHTA550-2GSWRN SHTD125-2GSWRN	UVTSA130-2GSWR(S) UVTSA250-2GSWR(S) UVTSA480-2GSWR(S) UVTSD110-2GSWR(S)	UVTSA130-2GSWRN UVTSA250-2GSWRN UVTSA480-2GSWRN UVTSD110-2GSWRN			

11. Pre-alarm Modules (PAL)

• The PAL can be installed on the right side face of electronic circuit breaker.

Table 5-14

	Pre-alarm SSR output	Pre-alarm module (mechanical contact output) (Note 2)
NF125-SGW/HGW NF160-SGW/HGW NF250-SGW/HGW	Option	Option (Note 1)
NV250-SEW/HEW	 (Note 3) 	Option (Note 1)

Notes: (1) A control power supply (compatible to 100–200V AC) is required. (2) An additional accessory cannot be installed on the right pole in this case. (3) LED indicate only

The self-hold type is standard, but an automatic-reset type can be produced

upon request.

• Pre-alarm Characteristics

Pre-alarm Module

1. F-type Operating Handle

• Appearance (Color N1.5)

 This handle in conjunction with the breaker enables the isolation function effective.

- The standard model is equipped with a safety device that prevents the circuit breaker from being turned on if the door is open. (If not desired, please specify so.)
- The handle can be locked at either ON or OFF position. (Three padlocks (40mm) can be installed. OFF-position lock only specifications are also acceptable.)
- Degrees of protection (IEC60529) IP3X (IP5X with dustproof packing)
- Remark: (1) Trip action can be displayed when the circuit breaker trips even if ON-position lock is selected (only in the case of a single padlock (35 mm)).

Table 5-15: Summary of Dimensions

Drilling Dimension Diagram

Center of Hinge and Circuit Breaker

Le	eft hinge	Right hinge				
Н	X1	н	X2			
0	0 (5H+100)	Less than 10	170 or higher			
or higher or higher	10 or higher	(5H+120) or higher				

The above illustration shows a view of the hinges and the circuit breaker when viewed from the direction of the load.

Tuno nomo	Applicable models	Number		Mounting			
Type name	Applicable models	of poles	A (Note 1)	В	С	D	screws
F05SW2P	NF32-SW, NF63-CW/SW/HW	2P					(a) Circuit
F05SW	NF32-SW, NF63-CW/SW/HW, NV32-SW, NV63-SW/HW, MB30-SW, MB50-CW/SW			25	111		breaker
	NV63-CW/SW	2P, 3P	105	20		Either	mounting screws
F1SW2P	NF125-CW/SW/HW	2P			111	M4×0.7	(2pcs)
F1SW	NF125-CW/SW/HW, NV125-CW/SW/HW, MB100-SW	3P, 4P		30		screw or ø5	(b) Handle
F2SW	NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW, NV250-SEW/HEW, MB225-SW	2P, 3P, 4P	107	35	126		(2 pcs)
F2GSW	NF125-SGW/HGW, NF160-SGW/HGW, NF250-SGW/HGW	3P, 4P	125	35	126		(Zpcs)

Note: (1) Dimensions of both front connection and rear connection are shown. The plug-in type has a different reference plane for mounting the circuit breaker.

Remarks: (1) The test button becomes difficult to press when an operating handle is installed on an NV model. Then, use models with either TBM instead. (2) Dustproof packings are separately available.

 (3) You may consult us for details of the F-type operating handle for the U series.
 (4) The standard type is equipped with a door-lock mechanism that allows the door to be opened only when OFF operation (see below *) is carried out. (*) We can supply upon request another door-lock mechanism that allows the door to be opened only when reset operation is carried out, which, however, is not isolation-compatible.

2. S-type Handle

• Appearance (Color N1.5)

• The handle can be locked at either ON or OFF position. (Three padlocks (40mm) can be installed. Off-position lock only specifications are also acceptable.)

Digrees of protection (IEC60529) IP5X

Remark: (1) Trip action can be displayed when the circuit breaker trips even if ON-position lock is selected (only in the case of a single padlock (35 mm)).

Outside Dimension Diagram

Front Plate Drilling Dimension Diagram

Reference plane for mounting the circuit breaker

Table 5-16: Summary of Dimensions

	Ang Kashia asadala	Dimensions (mm)				
Type name	Applicable models	A (Note 4)	B (Note 4)	C (Note 4)		
S05SW	NF32-SW, NF63-CW/SW/HW, NV32-SW, NV63-CW/SW/HW, MB30-SW, MB50-CW/SW	07	102	104.5		
S1SW	NF125-CW/SW/HW, NV125-CW/SW/HW, MB100-SW, NV125-RW (Note 5)	07				
S2SW	NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW, NV250-SEW/HEW, MB225-SW, NV250-RW (Note 5)	95	110	112.5		
S2GSW	NF125-SGW/HGW, NF160-SGW/HGW, NF250-SGW/HGW	113	128	130.5		
lotes: (1) The clasps are not supplied standardly, and should be prepared by users. Details on dimensions and others will be Remark: (1) These are not suitable for isolation						

Notes: (1) The clasps are not supplied standardly, and should be prepared by users. Details on dimensions and others will be available upon request.

(2) When the optional clasp is used

(3) The tolerance from the center of ø62 is shown.

(4) The dimensions of the front-face type are shown. Some of the back-face and plug-in types have a different reference

plane for mounting the circuit breaker

(5) The front plate drilling dimensions for the U series differ from those shown above. Please consult us for their details.

3. V-type Operating Handle

Appearance (Color N1.5)

- This handle in conjunction with the breaker main enables the isolation function effective.
- The safety standards of EN Standards (EN60204-1) are satisfied.

Table 5-17: Summary of Dimensions

- Degrees of protection (IEC60529) IP65 is satisfied standardly.
- OFF-position lock only is available for up to three commercial padlocks (ø8).
- A door-lock mechanism allows the door to be opened at OFF-position only.

Outside Dimension Diagram

Mounting-hole Drilling Dimension Diagram

Center of Hinge and **Circuit Breaker**

of the hinges and the circuit breaker when viewed from the direction of the load.

Note 1: The drilling at this position is not required for the models of both V2GSW and V2GSWF.

	Applicable models	Number	Jumber Dimensions (mm)								
Type name	Applicable models	of poles	А	В	С	D	E	F	G	Н	J
(Note 2) (Note 3)	NF32-SW, NF63-CW/SW/HW, NV32-SW	3P	75	120	11	61	125		25	111	
V05SWF	MB50-CW/SW	4P	75	130	44	01	125		25		12.5
V1SW	NF125-CW/SW/HW, NV125-CW/SW/HW		00	120		61	154	518	20	111	
(Note 2) V1SWF	MB100-SW	4P	90	130	44	01	125		30		15
V2SW	NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW	2P, 3P	105	405	46		154	518	25	100	
(Note 2) V2SWF	NV250-SEW/HEW, MB225-SW	4P	105	100	40	01	125		30	126	17.5
V2GSW		3P					172	536			
(Note 2) V2GSWF	NF125-SGW/HGW, NF160-SGW/HGW, NF250-SGW/HGW	4P	105	165 46	79	143	35	35	126	17.5	

Notes: (1) This hole is not required for two and three poles. (2) The last letter of "F" of the type designations of V-type operating handles denotes a fixed type. Attach the letters of "4P"

to the end of designation for four-pole models of circuit breaker main body. (3) Adjustable types can be produced upon request. Please contact us for details.

Remark: (1) You may contact us for details of the V-type operating handle for the U series.

* Equipped with cylinder key (option) to prevent deliberate operation.

4. R-type Operating Handle

• Appearance (Color N1.5)

- This handle in conjunction with the breaker main enables the isolation function effective.
- OFF-position lock only is available for up to three commercial padlocks (ø8).
- Equipped with cylinder key (option) prevent deliberate operation.

Outside Dimension Diagram

Mounting-hole Drilling Dimension Diagram

Note 1: The drilling at this position is not required for the models of R2GSW.

Table 5-18: Summary of Dimensions

Turne norme		Number	Dimensions (mm)									
i ype name	Applicable models	of poles	А	В	С	D	E	F	G	н	J	
DACW	NF125-CW, NF-125-SW, NF125-HW		90	120	61	105	140	20	111		-	
RISW	NV125-CW, NV125-SW, NF125-HW	4P	120	130		105	142	30			15	
R1UW	NV125-RW	3P	90	191	61	105	142	30	172	30.5	_	
NF160-SW, NF160-HW, NF250-CW, NF250-SW, NF250-HW		2P, 3P	105	105		407	144	35	126		_	
R25W	NV250-GW, NV250-SW, NF250-HW, NV250-SEW NV250-HEW	4P	140	601	61	107	144	35	126	_	17.5	
R2UW	NV250-RW	3P	105	240	61	107	144	35	201	37.5	_	
DOOM	NF125-SGW, NF125-HGW, NF160-SGW, NF160-HGW,	2P, 3P	105	165	70	105	160	25	126	_	—	
R2GSW	NF250-SGW, NF250-HGW	4P	140	105	19	125	162	35	120		17.5	
R2GUW	NF125-RGW, NF125-UGW, NF250-RGW, NF250-UGW	3P	105	240	79	125	162	35	201	37.5	_	

* Equipped with cylinder key (option) to prevent deliberate operation.

Remark: (1) You may contact us for details of the V-type operating handle for the U series.

5. Circuit Breaker Box and Box-type Circuit Breaker

Table 5-19: Types and Specifications

	Dustproof (S)	Dustproof (I)	Waterproof (W)	
Appearance				
Degrees of protection (IEC60529)	IP3X	IP4X	IP54	
Number of poles	2P, 3P	2P, 3P	3P	
NF32-SW, NF63-CW/SW/HW, NV32-SW NV63-CW/SW/HW, MB30-SW, MB50-CW/SW	NFS-05SW (Note 1)	NFI-05SW	NFW-05SW	
NF125-CW/SW, NV125-CW/SW, MB100-SW	NEC 40M/ (Note 1)		NFW-1SW	
NF125-HW, NV125-HW	INFS-15W (Note I)	INFI-15W	NFW-1HW	
NF160-SW, NF250-CW/SW, NV250-CW/SW, NV250-SEW, MB225-SW	NFS-2SW		NEW 2SW	
NF160-HW, NF250-HW, NV250-HW, NV250-HEW	-	INFI-2SW	INF VV-25VV	
NF125-SGW/HGW, NF160-SGW/HGW, NF250-SGW/HGW	-	NFI-2GSW	NFW-2GSW	

Note: (1) Attach the letters of "2P" to the end of type designation when the circuit breaker of external two poles.

Remarks: (1) Use your working current by 80% and under of rated current. (2) The dustproof type (I) is not suitable for isolation.

6. Terminal Cover

Table 5-20

			Large terminal cover (TC-L)	Small terminal cover (TC-S)	Transparent terminal cover (TTC)	Rear terminal cover (BTC)	Plug-in terminal cover (PTC)
Breaker type			B A	B	R R R	B	B
NF32-SW, NF63-CW/SW/HW	2P		(Note 1) TCL-05SW2W (50 × 65.5 × 25)	(Note 1) TCS-05SW2W (50 × 65.5 × 5)	(Note 1) TTC-05SW2 (50 × 65.5 × 25)	BTC-05SW2W (50 × 65.5 × 5)	PTC-05SW2W (50 × 65.5 × 6.5)
NF32-SW, NF63-CW/SW/HW NV32-SW, NV63-CW/SW/HW, MB30-SW MB50-CW/SW	ЗP		(Note 2) TCL-05SW3W (75 × 65.5 × 25)	(Note 2) TCS-05SW3W (75 × 65.5 × 5)	(Note 2) TTC-05SW3 (75 × 65.5 × 25)	BTC-05SW3W (75 × 65.5 × 5)	PTC-05SW3W (75 × 65.5 × 6.5)
NF125-CW/SW/HW	2P	IP20	(Note 1) TCL-1SW2W (60 × 65.5 × 40)	(Note 1) TCS-1SW2W (60 × 65.5 × 6.5)	(Note 1) TTC-1SW2 (60 × 65.5 × 40)	BTC-1SW2W (60 × 65.5 × 6.5)	PTC-1SW2W (60 × 65.5 × 6.5)
NF125-CW/SW/HW, NV125-CW/SW/HW, NV125-RW, MB100-SW	ЗP		(Note 2) TCL-1SW3W (90 × 65.5 × 40)	(Note 2) TCS-1SW3W (90 × 65.5 × 6.5)	(Note 2) TTC-1SW3 (90 × 65.5 × 40)	BTC-1SW3W (90 × 65.5 × 6.5)	PTC-1SW3W (90 × 65.5 × 6.5)
NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW, NV250-SEW/HEW, NV250-RW MB225-SW	2P 3P		(Note 2) TCL-2SW3W (105 × 65.5 × 40)	(Note 2) TCS-2SW3W (105 × 65.5 × 6.5)	(Note 2) TTC-2SW3 (105 × 65.5 × 40)	BTC-2SW3W (105 × 65.5 × 6.5)	PTC-2SW3W (105 x 65.5 x 6.5)
NF125-SGW/HGW/RGW/UGW, NF160-SGW/HGW NF250-SGW/HGW/RGW/UGW	2P 3P	IP40	TCL-2GSW3W (105 × 84 × 40)	TCS-2GSW3W (105 x 84 x 6.5)	TTC-2GSW3 (105 × 84 × 40)	BTC-2GSW3W (105 × 84 × 6.5)	PTC-2GSW3W (105 x 84 x 6.5)

Notes: (1) Attach the letter "F" to the end of model designation for models with F-type operating handle. (Those are F-type operating-handle dedicated models, (1) Anach the letter 1 to the end of model designation for and screws are used for fixing.)(2) An F-type operating handle can be installed standardly.

Remarks: (1) Parenthesized numbers denote the outside dimensions (A×B×C in mm). (2) The terminal cover for a four-pole model can be produced upon request.

7. Electrical Operation Device

Table 5-21: Summary of Model Designations

Applic	(Note 1) able models	NF125-CW(3P) NF125-SW(3P, 4P) NF125-HW	NF160-SW/HW NF250-CW/SW/HW	NF125-SGW/HGW NF160-SGW/HGW NF250-SGW/HGW	NV125-CW/SW/HW	NV250-CW/SW/HW	NV250-SEW/HEW
Dated aparating	24V DC	MDSD024-NF1SWE	MDSD024-NF2SWE	MDSD024-NF2GSWE	MDSD024-NV1SWE	MDSD024-NV2SWE	MDSD024-NVE2SWE
voltage	Compatible to 100-240V AC/100-250V DC	MDSAD240-NF1SWE	MDSAD240-NF2SWE	MDSAD240-NF2GSWE	MDSAD240-NV1SWE	MDSAD240-NV2SWE	MDSAD240-NVE2SWE

Table 5-22: Specifications

Rated op (Allowable volt	erating voltage age range 85~110%)	24V DC	Compatible to 100-240V AC/100-250V DC			
	ON action	0.05	-0.1			
Operating time (s)	OFF action	0.6 o	r less			
	Charging action	1.2 or less				
Power re	quirement (VA)	15	50			

Note: (1) Place an order of other models in conjunction with the circuit breaker.

Remarks: (1) The standard terminal cover can be used. (2) Please contact us for details of the outside dimensions.

P.S	Switching power supply (100-240V AC/100-250V DC model only)
SW1	Automatic/manual selection switch
SW2	Charge/Discharge Sensing switch
M	Motor
K1	Relay (OFF)
K2	Relay (Motor)
K3	Relay (Motor)

Dimensions

Front connection

NF125-CW, NF125-SW, NF125-HW

• NF160-SW, NF160-HW, NF250-CW, NF250-SW, NF250-HW

• NF125-SGW, NF125-HGW, NF160-SGW, NF160-HGW, NF250-SGW, NF250-HGW

• NV125-CW, NV125-SW, NV125-HW

• NV250-SEW, NV250-HEW

8. Mechanical Interlocks (MI)

Table 5-23

Applicable models		Panel mouting		Direct mount on	
Applicable models	of poles	Front connection, Rear connection, Plug-in	Dimension A mm	circuit breaker	
NF32-SW, NF63-CW/SW/HW	2P	ML OF SW/2	47.5	-	
NF32-SW, NF63-CW/SW/HW, NV32-SW, NV63-CW/SW/HW, MB30-SW, MB50-CW/SW	3P	101-035003	-	MI-05SWFB3	
NF63-SW/HW	4P	MI-05SW4		-	
NF125-CW/SW/HW	2P	ML OF SIMO	45	-	
NE125 CW/SW/HW NV/125 CW/SW/HW MP100 SW NV/125 DW	3P	101-055003		MI-1SWFB3	
NF123-CW/SW/HW, NV123-CW/SW/HW, MB100-SW, NV123-RW	4P	MI-1SW4		-	
NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW, NV250-SEW/HEW, MB225-SW, NV250-RW	2P 3P	MI-05SW3	-	MI-2SWFB3	
NF160-SW/HW, NF250-SW/HW, NV250-SW/HW/SEW/HEW	4P	MI-2SW4		-	
NF125-SGW/HGW/RGW/UGW, NF160-SGW/HGW, NF250-SGW/HGW/RGW/UGW	3P	MI-2SGW3		MI-2SGW3	
NF125-SGW/HGW/UGW, NF160-SGW/HGW, NF250-SGW/HGW/UGW	4P	MI-2SGW4		-	

Outside Dimension Diagram

Drilling Dimension Diagram

Notes: (1) When the panel plate thickness is 2.3 or more, prepare four holes (ø5.5 and ø9.5 countersunk (rear)).

- (2) These are standard dimensions for 2- and 3-pole models, but can be
 - 2- and 3-pole models, but can be altered upon request.
- (3) The U series have different dimensions.
- Please contact us for details.
- Remarks: (1) Please contact us for outside dimensions of other models of different specifications.
 - (2) These are not isolation-compatible.

9. Handle Lock Devices and Card Holder

Table 5-24

Description		Lock cover (LC)	Handle lock (HL)	Handle lock (HL-S) (Note 2)	OFF Lock with 3 Padlock	Card holder
Appearance						
NF32-SW, NF63-CW/SW/HW	2P		(Note 1)	HLS-05SW2P		
NF32-SW, NF63-CW/SW/HW, NV32-SW, NV63-CW/SW/HW MB30-SW, MB50-CW/SW	3P	LC-05SW	HLF-05SW HLN-05SW	HLS-05SW		
NF63-SW/HW	4P					
NF125-CW/SW/HW	2P		(Note 1)	HLS-1SW2P		
NF125-CW/SW, NV125-CW/SW/HW MB100-SW, NV125-RW	3P	LC-1SW	HLF-1SW HLN-1SW	HLS-1SW	—	CH-P No.5
NF125-SW/HW, NV125-SW/HW	4P					
NF160-SW/HW, NF250-CW/SW/HW, NV250-CW/SW/HW NV250-SEW/HEW, MB225-SW NV250-RW	2P 3P 4P	LC-2SW	(Note 1) HLF-2SW HLN-2SW	HLS-2SW		
NF125-SGW/HGW, NF160-SGW/HGW, NF250-SGW/HGW	3P, 4P	LC-2GSW	HLF-2GSW (Note 1) HLN-2GSW	HLS-2GSW	HLF3-2GSW	

Notes: (1) HLF types are used for OFF-lock, and HLN types for ON-lock.

(2) HL-S types are used for OFF-lock.
 Remark: (1) Users are requested to prepare padlocks for HL and HL-S types. (25mm padlock for HL, and 35mm padlock for HL-S.)

10. IEC 35mm Rail Mounting Adapters

Table 5-25

Applicable models	Number of poles	Parts number
NF32-SW, NF63-CW/SW/HW NV32-SW, NV63-CW/SW/HW, MB30-SW MB50-CW/SW	2P 3P	DIN-05SW
	2P	DIN-1SW2
INF 123-CW/SW	3P	
NF125-HW, NV125-CW/SW/HW, MB100-SW	2P 3P	DIN-1SW3

Molded-Case Circuit Breakers and Motor Breakers

NF32-SW NF63-CW NF63-HW NF63-SW **MB30-SW** MB50-CW **MB50-SW**

Series				S series		C se	eries	S series			H series			S series	C series	S series		
Group	D			WSS	S G1	WSS	6 G1	WS	SS G1		W	SS G	61	WSS G1	WSS G1	WSS G1		
Fram	e size			3	2	6	3		63		63			30	50	50		
Туре	name			NF32	NF32-SW		B-CW	NF	63-SV		NF	63-H	W	MB30-SW	MB50-CW	MB50-SW		
Rateo	Rated current In (Amp.)			3 4 6 10 3 4 16 20 25 16 20 32 40		3 4 16 20 40 5	6 10 25 32 0 63	3 4 6 10 16 20 25 32 40 50 63		2	10 16 20 25 32 40 50 63		20 40 3	0.8 1.2 1.4 2 2.5 4 5 7.1 8 10 12 16 25	8 10 12 16 25 32 40 45	0.8 1.2 1.4 2 2.5 4 5 7.1		
Numb	er of poles		2*1	3	2*1	3	2*1	3 4	2	2*1	3	4	3	3	3			
Rated	insulation volt	1	6	00	6	00		600		690			500	500	500			
ait (A)			690V	-		-			-		2.5/1			-	-	-		
(K C		AC	500V	2.5/1		2.5/1		7.5/4			7	7.5/4	ł	-	-	-		
ort-o	150000 (7.0		440V	2.5/1 5/2 7.5/4		2.5/1		7	7.5/4			10/5		2.5/1	2.5/1	7.5/4		
d sh	IEC60947-2 (Icu/Ics)	(50/60Hz)	400V			5/2		7	.5/4		10/5		10/5			7.5/4	7.5/4	7.5/4
akin	()		230V			7.5/4		15/8			25/13			7.5/4	7.5/4	15/8		
Ъg		DC	250V	2.5/1	-	2.5/1	-	7.5/4	-	7.	.5/4	-	-	-	-	-		
Suitat	oility for isolatio	n -∕₩-				•			•			٠		•	•	•		
Utiliza	tion category			/	Ą	1	Ą		А			А	A A		A	А		
Revers	se connection (te	marked)						•		• •		•	•	•				
Rated	Rated impulse withstand voltage Uimp (kV)				6	(3		6		6		6		6	6	6	
Pollut	ion degree			2	2	2	2		2			2		2	2	2		

Type NF32-SW

■Operating Characteristics

 \ast 1: Types of DC specifications can be produced upon request.

4h

Internal Accessories

Remark: (1) refer to 24

■External Accessories

	Accessories		Type name	Reference page		Accessorie	s	Type name	Reference page
		F	F05SW (*1)	07	N	echanical	MI	MI 05 S/M/2 (#4)	22
Operating handle		S	S05SW	21		interlock		101-053003 (*1)	32
		V	V05SWF	28	ē	Small	TC-S	TCS-05SW3W (*1)	
		R	_		S S	Large	TC-L	TCL-05SW3W (*1)	
ar		S	NFS-05SW	20	nal	Skeleton	TTC	TTC-05SW3 (*1)	30
losi	Dusipiooi	Ι	NFI-05SW	29	- Lin	Rear	BTC	BTC-05SW3W (*1)	
ШŬ	Waterproof	W	NFW-05SW		۳,	Plug-in	PTC	PTC-05SW3W (*1)	
		LC	LC-05SW						
	Handle lock device		HLF-05SW	22		IEC 35mm ra	ail		22
Па			HLN-05SW	32	m	ounting adap	ters	DIN-055W	32
		HL-S	HLS-05SW (*1)						

Notes: (*1) The designation depends on the number of poles. Refer to the reference page. (*2) HLF types are used for OFF-lock, and HLN types for ON-lock.

■Temperature Characteristics

Ambient temperature (°C)

Standard Attached Parts (Front connection)

Mounting screw:	M4×0.7×55
(Note)	(2 and 3P: 2pcs, 4P: 4pcs)
Insulation barrier:	: (2P: 1pc, 3P: 2pcs, 4P: 3pcs)
Note: These are suppl	ied with NF63-SW, NF63-HW, and
MB50-SW mode	Is.

• NF32-SW, NF63-CW, NF63-SW, NF63-HW, MB30-SW, MB50-CW, MB50-SW

Plug-in

Molded-Case Circuit Breakers and Motor Breakers

NF125-SW NF125-CW **NF125-HW MB100-SW**

Selle	5				ines	3	series	\$		sene	5	o series	
Grou	р			WSS	6 G2	W	ISS G2	2	V	VSS G	2	WSS G2	
Fram	e size			12	25		125			125		100	
Туре	name			NF12	NF	NF125-SW			125-H	w	MB100-SW		
Rate	Rated current In (Amp.)				50 63 80 100 125			16 20 32 40 50 63 80 100 125			2 40 80	(12.5) (16) (25) 32 (40) 45 63 71 90 100	
Num	per of poles			2	3	2	3	4	2	3	4	3	
Rated	d insulation voltag	e Ui (V)		60	00		690			690		500	
	(A)		690V	-	8/4				10/5		-		
¥,		AC (50/60Hz)	500V	7.5		18/9			30/15		-		
ty (F			440V	10		25/13			50/25		25/13		
ort-i aci	IEC60947-2		400V	10)/5		30/15			50/25		30/15	
g cp	(Icu/Ics)		230V	30/	50/25				100/50)	50/25		
atec			250V	7.5/4	-	15/8	-	-	40/20	-	-	-	
bra		DC *1	400V	-	7.5/4	-	15/8	-		40/20		-	
			500V	-	-	- 15/8		- 40/20		40/20	-		
Suita	bility for isolation	~* *					٠			٠		•	
Utiliza	Utilization category				4		А		A			А	
Reve	Reverse connection (terminals unmarked)				•		•		•			•	
Rateo	impulse withstand	8		8			8			8			
Pollu	Pollution degree				3		3			3		3	

*1: When wired as shown at the bottom of page 13, 3-pole models can be used for up to 400 V DC, and 4-pole models for up to 500 V DC.

Current rating (%)

■Operating Characteristics

Type NF125-CW

Remark: (1) Only AC characteristics are available for the model MB100-SW.

■Internal Accessories

Remark: (1) refer to 24.

External Accessories

	Accessories	3	Type name	Reference page		Accessorie	es	Type name	Reference page
			F1SW (*1)	07	N	lechanical	MI		22
Operating handle	S	S1SW	21		interlock	IVII	IVII-055VV3 (*1)	32	
Operating handle		V	V1SW (*2)	28	er	Small	TC-S	TCS-1SW3W (*1)	
		R	R1SW		S	Large	TC-L	TCL-1SW3W (*1)	
an	Closed-box	S	NFS-1SW	20	Jal	Skeleton	TTC	TTC-1SW3 (*1)	30
losi	Dustproof	I	NFI-1SW	29	Ē	Rear	BTC	BTC-1SW3W (*1)	
Enc	Waterproof	W	NFW-1SW/1HW	1	Te	Pulg-in	PTC	PTC-1SW3W (*1)	
		LC	LC-1SW			IEC 35mm	rail	DIN-1SW/3 (*1)	32
	adla laak daviaa	(*4)	HLF-1SW	22		mounting ada	apters	BIN-10003 (1)	02
na	Handle lock device		HLN-1SW	32		Electrical			20
		HL-S	HLS-1SW (*1)(*4)]		operation dev	vice	WDS-INF ISVVE (3)	30

Notes: (*1) The designation depends on the number of poles. Refer to the reference page (*2) Attach the letter "F" to the end of designation for a fixed type.

(*3) Specify the working voltage. An order of MB100-SW should be placed at the same time as an order of circuit breaker main body. (*4) HLF types are used for OFF-lock, and HLN types for ON-lock.

28 18 2ř 1ř RW 32A 25-CW 125A 25-SW 125A 60947-2) 30min 20min 14min 10min 6min 4min 30min 20min 14min 10min 6min 4min 2min 1min 30s 20s 10s 5s 2min 1min 30s 20s 10s 5s Operating time 28 1s 0.5 0.5s 0.2 0.2s 0.1s 0.1s 0.05s 0.05s 0.02s 0.01s 0.02s 0.01s 4 5 6 7 4 5 6 7 10 × 100% of Rated current × 100% of Rated current

■Ambient Compensating Curve

Standard Attached Parts (Front connection)

Mounting screw:	M4×0.7×55 (2 and 3P: 2pcs, 4P: 4pcs)
Insulation barrier	: (2P: 1pc, 3P: 2pcs, 4P: 3pcs)

Note: These are supplied with NF125-SW, NF125-HW, and MB100-SW models

• NF125-CW, NF125-SW, NF125-HW, MB100-SW

Plug-in

Remark: 2-pole model of NF125-HW are 3-pole model with the central pole removed.

Molded-Case Circuit Breakers and Motor Breakers

NF250-CW NF250-SW NF250-HW NF160-SW NF160-HW MB225-SW

Series					5 series		н	H series		C series			5 series			H series			5 series	
Grou	р			N	ISS G	33	W	/SS G	3	WS	S (G3	W	ISS G	3	W	ISS G	33	WSS G3	
Fram	e size				160			160		250		250			250			225		
Туре	name			NF160-SW		NF	NF160-HW		NF250-CW			NF	250-8	SW	NF250-HW			MB225-SW	V	
Rated	Rated current In (Amp.)			125	150	160	125	150	160	125 1 200 2	50 25	175 250	125 200	150 225	175 250	125 200	150 225	175 250	125 150 17 200 225	75
Numb	per of poles			2	3	4	2	3	4	2		3	2	3	4	2	3	4	3	
Rated insulation voltage Ui (V)					690			690		6	00			690			690		500	
	IEC60947-2		690V		-			5/3			-			-			5/3		-	
hit A)		AC	500V		15/8			30/8		1	0/5	5		15/8			30/8		-	
y (k		(50/60Hz)	440V	25/13				50/13		1	5/8	5		25/13			50/13		25/13	
ort-o			400V	30/15 50/25		50/13		1	8/9)	:	30/15			50/13		30/15			
d sh	(Icu/Ics)		230V			100/25		35	5/18	8		50/25		100/25			50/25			
akin			250V	15/8	-	_	40/20	-	-	10/5		-	15/8 –		40/20	-	-	-		
R R		DC	400V	-	15/8	-	-	40/20	-	-		10/5	-	15/8	-	-	40/20	-	-	
			500V	-	-	15/8	-	-	40/20		-		-	-	15/8	-	-	40/20	-	
Suital	oility for isolati	on ∕≁			٠			٠			•			•			٠		•	
Utiliza	ation category				А			А			A			А		A			А	
Rever	se connection (t	erminals ur	nmarked)		٠			٠			•		•			•			•	
Rated	Rated impulse withstand voltage Uimp (kV)				6			6		6		6			6			6		
Pollut	Pollution degree				2			2			2			2		2			2	

*1: When wired as shown at the bottom of page 13, 3-pole models can be used for up to 400 V DC, and 4-pole models for up to 500 V DC

Operating Characteristics

Remark: The reference ambient temperature for IEC models is 30°C.

Internal Accessories

Standard Attached Parts (Front connection)

(2 and 3P: 2pcs, 4P: 4pcs)

Insulation barrier: (2P: 2pcs, 3P: 4pcs, 4P: 6pcs)

Mounting screw: M4×0.7×55

■External Accessories

	Accessories		Type name	Reference page		Accessories		Type name	Reference page
		F	F2SW	27		Mechanical interlock			22
	nerating handle	S	S2SW	21				101-055005 (1)	32
		V	V2SW (*3)	28	er	Small	TC-S	TCS-2SW3W (*1)	
		R	R2SW		0 S	Large	TC-L	TCL-2SW3W (*1)	
ure	Dustproof	S	NFS-2SW (*5)	29	nal	Skeleton	TTC	TTC-2SW3 (*1)	
clos		1	NFI-2SW	20	Ē	Rear	BTC	BTC-2SW3W (*1)	30
Ē	Waterproof	W	NFW-2SW		⊢	Plug-in	PTC	PTC-2SW3W (*1)	
		LC	LC-2SW						
Handle lock device		(*4)	HLF-2SW	32		Electrical			
		HL	HLN-2SW			operation devic	e	e INDS-NF2SWE (*2)	
		HL-S	HLS-2SW						

Notes: (*1) The designation depends on the number of poles. Refer to the reference page.

(*2) Specify the working voltage. An order of MB225-SW should be placed at the same time as an order of circuit breaker main body.
(*3) Attach the letter "F" to the end of designation for a fixed type.

(*4) HLF types are used for OFF-lock, and HLN types for ON-lock. (*5) NF160-HW, NF250-HW model cannot be produced.

■Ambient Compensating Curve

• NF250-CW, NF250-SW, NF250-HW, NF160-SW, NF160-HW, MB225-SW

Front connection

Plug-in

Remarks: 1. 2-pole models are 3-pole models with the central pole removed.

 Only 2- and 3-pole models are available for the model of NF250-CW, and only 3-pole models are available for the model of MB225-SW.

Molded-Case Circuit Breakers

NF250-SGW NF250-HGW NF160-SGW NF160-HGW NF125-SGW NF125-HGW

Type NF250-SGW

Serie	s	S series		S series		H series		H series		S series		S series					
Grou	р			~	/SS G	64	WSS	G4	w	'SS G	4	WSS	6 G4	- w	SS G4	WSS	5 G4
Fram	ne size				125		12	5		125		12	25		160	160	
Туре	name			NF	125-S0 RT	зw	NF125 RI	-SGW	NF	125-HC RT	SW	NF125-HGW RE		NF1	NF160-SGW RT)-SGW E
Rate	d current In	(Amp.)		16–25, 25–40, 40–63, 63–100, 80–125		16–32, 32–63, 63–100, 75–125		16–25, 25–40, 40–63, 63–100, 80–125		16–32, 32–63, 63–100, 75–125		125–160		80-	160		
Num	ber of poles			2	з	4	з	4	2	з	4	з	4	2	3 4	3	4
Rate	d insulation	voltage U	i (∨)		690	690			690		69	90		690	69	90	
÷≅€	± € 690∨				8/8		8/	8	:	20/20		20/	20		8/8	8,	/8
말옷		AC	500V	1	30/30		30/	30		50/50		50/	50	3	30/30	30/	/30
i ∰ E	150	(50/60Hz)	440V		36/36		36/	36		65/65		65/	65	:	36/36	36,	/36
a ort	60947-2		400V		36/36		36/	36	1	75/75		75/	75	3	36/36	36,	/36
유학	(Icu/Ics)		230V		85/85		85/	85	10	00/10	0	100/	100	8	35/85	85,	/85
in ed			300V	20/20	-	-	-		40/40		-	-	-	20/20	-	-	-
a a		DC *1	500V	-	20/20	-	-		-	40/40	-	-	-	-	20/20 -	-	-
4 2			600V	-	-	20/20	-		-	-	40/40	-	-	-	- 20/20	-	-
Suita	bility for isol	ation 🦯	x -		•		•	•		•		•			•	•	
Utiliz	Utilization category				A		A			A		A	`		А	ļ A	7
Rever	se connection	(terminals u	nmarked)	• •)	•		•		•		•				
Rated	Rated impulse withstand voltage Uimp (kV)				8		8			8		8		8		8	3
Pollu	Pollution degree				з		3			з		3	3		3	3	3
Serie	s			н	serie	s	H se	ries	s	serie	s	S se	ries	н	series	H se	eries
Grou	p			WSS G4		vv55 G4			SS G	4	WSS G4		WSS G4		WSS G4		
Fram	ne size				160		160			250		250			250	25	50
Туре	name			NF160-HGW RT		RE		RT		RE		RT		NF250 R	E		
Rate	d current In	(Amp.)		12	25–16	0	80–160		125–160, 160–250		125–250		125–160 160–250		125-	-250	
Num	ber of poles			2	з	4	3	4	2	з	4	з	4	2	3 4	з	4
Rate	d insulation	voltage U	i (∨)		690		69	0		690		69	90		690	69	90
≝∢			690V	:	20/20		20/	20		8/8		8/	8		20/20	20/	/20
전폭		AC	500V		50/50		50/	50	1	30/30		30/	30	5	50/50	50/	/50
is E	IFC	(50/60Hz)	440V		65/65		65/	65	1	36/36		36/	36	e	65/65	65/	/65
ba	60947-2		400∨		75/75		75/	75	:	36/36		36/	36	7	75/75	75/	/75
20	(Icu/Ics)		230V	1	00/10	0	100/	100	1	35/85		85/	85	10	00/100	100/	/100
je ed		1	300V	40/40	-	-	_		20/20		-	-	-	40/40	_	-	-
a a		DC	500V	-	40/40	-			-	20/20	-		-	-	40/40 -	-	-
600V				-	-	40/40					20/20		-	-	- 40/40		-
Suita	bility for isol	ation -	× -		•			•		-					-	-	•
Utiliz	ation catego	ry			A		A			A		A	<u> </u>		A	A	
Reverse connection (terminals unmarked)					-			•		-			•	• •		•	
Dallu	impuise Withst	anu voltage	Ump (KV)		3		8			0		8	•	8		8	
Poilu	aon degree				3		3		1	з		3	•	1	ა	3	,

*1: Use either 2-pole. When wired as shown at the bottom of page 13, 3-pole models can be used for up to 500 V DC, and 4-pole models for up to 600 V DC.

■Operating Characteristics

×100% of Rated current

NF160-SGW NF160-HGW

Doer

2h Thermal-Adjustable types 30min 20min 14min 10min 6min 4min 2min 1min 30s 20s 10s 5s x in (%) 25 0.25 0.1s 0.05s 0.02s 0.01s \vdash + 30 4 5 6 7 3 20 ×100% of Rated current

■Ambient Compensating Curve

Ambient temperature (°C) (rated ambient 40°C)

Note) Instantaneous tripping current (x100% of In) Internal Accessories

×100% of Current setting

×100% of Current setting Note) Instantaneous tripping current (x100% of In)

NF250-SGW NF250-HGW ng Ir Rate 7507

Accessories Operating handle Dustproof Waterproof Handle lock device HL-S HLS-2GSW

5		Type name	Reference page		Accessories	s	Type name	Reference page	
	F	F2GSW	27	М	echanical		MLOER M/2 (t)	20	
s		S2GSW	21	i	nterlock	MI	IVII-055VV3 (*)	32	
	V	V2GSW (*3)	28	e	Small	TC-S	TCS-2GSW3W (*)		
	R	R2GSW		8	Large	TC-L	TCL-2GSW3W (*1)		
	S	-	20	Skeleton		TTC	TTC-2GSW3 (*1)	1	
	Т	NFI-2GSW	25	- E	Rear	BTC	BTC-2GSW3W (*1)	1	
	W	NFW-2GSW		Ē	Plug-in	PTC	PTC-2GSW3W (*1)	30	
	LC	LC-2GSW						1	
	(*2)	HLF-2GSW	22		Electrical		MDS-NF2GSWJ		
HL		HLN-2GSW	52	0	peration device	ce	(*1)		
		10.0000		i i					

otes:
 The designation depends
on the number of poles.
Refer to the reference page.
HLF types are used for
OFF-lock, and HLN types

Ne (*

(*:

for ON-lock. (*3) Attach the letter "F" to the end of designation for a fixed type.

 External /
Accessories

10mii 6mii 4mii

(0.70-0

• NF250-SGW, NF160-SGW, NF125-SGW, NF250-HGW, NF160-HGW, NF125-HGW

Front connection

Plug-in

Remark: 2-pole models are 3-pole models with the central pole removed.

Molded-Case Circuit Breakers

NF250-RGW NF250-UGW NF125-RGW NF125-UGW

Type NF250-UGW

■Operating Characteristics

Internal Accessories

External Accessories

	Accessories		Type name	Reference page		Accessories		Type name	Reference page	
		F	-	_		Small	TC-S	TCS-2GSW3W (*1)		
Operating handle		s	-		ove	Large	TC-L	TCL-2GSW3W (*1)		
		V	V2GUW	28	nal o	Skeleton	TTC	TTC-2GSW3 (*1)	30	
		R	R2GUW	29	ermi	Rear	BTC	BTC-2GSW3W (*1)		
ure	Dustproof	S	-			Plug-in	PTC	PTC-2GSW3W (*1)		
clos		Т	-	-			LC	LC-2GSW		
ш	Waterproof	W	-		н	andle lock	(*3)	HLF-2GSW		
Med	Mechanical interlock MI		MI-05SW3 (*1)	32		device	HL	HLN-2GSW	32	
Elec	Electrical operation device		☆ (*2)	30			HL-S	HLS-2GSW		

(*1) The designation depends on the number of poles. Refer to the reference page. (*2) An order should be placed at the same time as an order of circuit breaker main body. (*3) HLF types are used for OFF-lock, and HLN types for ON-lock.

Series	i							U se	eries								
Group				WSS	64 G4	N	/SS G	4	WSS	6 G4	WSS G4		4				
Frame	size			125		125		250		250							
Туре і	name			NF125-RGW RT		NF1	NF125-UGW RT		NF250 R	-RGW T	NF2	NF250-UGW RT					
Rated	current In (Amp.		16–25 25–40 40–63 63–100		16–25 25–40 40–63 63–100			125–160 160–225		125–160 160–225		0 5					
Numb	er of poles		2	3	2	3	4	2	3	2	3	4					
Rated	insulation voltag	e Ui (V)	69	90		690		69	90		690						
sircuit y (kA)	IEC60947-2		690V	25/	5/25 30/30			25/25		30/30							
		AC (50/60Hz)	500V	125/125 125/125		2	200/200		125/125		200/200		0				
			440V			2	200/20	0	125/	125	200/200		0				
ort-c			()	(00/00112)	(00/00112)	(00/00112)	(00,00112)	400V	125/125		2	200/20	0	125/125		200/200	
g sh	(Icu/Ics)		230V	125/125		200/200		125/125		200/200		0					
ateo			300V	40/40	-	40/40	-	-	40/40	-	40/40	-	-				
R g		DC	500V	-	40/40	-	40/40	-	-	40/40	-	40/40	-				
			600V	-	-	-	-	40/40	-	-	-	-	40/40				
Suitab	ility for isolation	~ ₩					٠)		٠					
Utiliza	tion category			A	4		А		A	۱.		А					
Rever	se connection (te	rminals unm	arked)				٠			•		٠					
Rated	impulse withstar	nd voltage U	imp (kV)	8	3		8		8		8						
Polluti	on degree			3	3		3		3		3						
oto: M	bon wirod as sh	own at the be	ttom of n	12 2	nolo mod		bour	od for	up to 400	V DC ar	nd 4-no						

N 400 V DC, and 4-pole models for up to 600 V DC.

■Ambient Compensating Curve

Ambient temperature (°C)

Remark: The reference ambient temperature for IEC models is 30°C.

Standard Attached Parts (Front connection)

Mounting screw: M4×0.7×55 (4pcs)

• NF250-RGW, NF125-RGW, NF250-UGW, NF125-UGW

Front connection

Rear connection 4-pole Insulating tube 4-pole Stud can be rotated 90° 3-pole Mounting plate Bre 0.000 φ. Φ. Φ. Φ. 3-pole 73 ſŤ 108 11.5 219 219 ¢ ¢ 201 Connection allowance ₫ 52 22 2 -M4×0.7 i⊕†⊕† ᠪᡟᠪᡰᠿᠿ breaker mounting screw a24 35 15 6 32.5 · @9 . M4×0.7 15 M8 bolt 35 35 100 70 taps Insulating tube or ø5 71 70 105 1mm clearance on each side of handle 105 90 106 3-r ole 4-pole Drilling plan Front-panel cutout

Plug-in

Remark: 2-pole models are 3-pole models with the central pole removed.

Earth-Leakage Circuit Breakers

NV63-CW

NV63-HW

NV32-SW NV63-SW

Type NV32-SW

■Operating Characteristics

Internal Accessories -

	Г	Operating handle
Left-side _ mounting	•	 Right-side mounting
●AL	OAX	🕅 UVT

MG CEAL

► TBM → Lead wire direction

■External Accessories

Remark: (1) refer to 24.

_										
		Accessories		Type name	Reference page		Accessorie	s	Type name	Reference page
			F	F05SW	27	Mechanical		м	MLOFOWD (#4)	22
	Or	orating bandlo	S	S05SW	21	i	interlock		101-033003(1)	52
Operating hand		berating nanule	V	V05SWF	28	Ъ	Small	TC-S	TCS-05SW3W	
			R	-	-	l õ	Large	TC-L	TCL-05SW3W	
Γ	ar	Dustproof	S	NFS-05SW		ual 1	Skeleton	TTC	TTC-05SW3	30
	lost		I	NFI-05SW	29	E.	Rear	BTC	BTC-05SW3W	
	Ĕ	Waterproof	W	NFW-05SW	1	⊢	Plug-in	PTC	PTC-05SW3W	
			LC	LC-05SW						
	Llei	مطام امماد طمينمم	(*1)	HLF-05SW	22		IEC 35mm ra	ail		22
	па	ndie lock device	ΗĹ	HLN-05SW	32	m	ounting adap	ters	DIN-055W	32
			HL-S	HLS-05SW]					

Note: (*1) HLF types are used for OFF-lock, and HLN types for ON-lock.

Series			S series	C series	S series	H series				
Group			WSS G1	WSS G1	WSS G1	WSS G1				
Frame size			32	63	63	63				
Type name			NV32-SW	NV63-CW	NV63-SW	NV63-HW				
Rated current In (A	mp.)		6 10 16 20 25 32	16 20 25 32 40 50 63	16 20 25 32 40 50 63	16 20 25 32 40 50 63				
Number of poles			3	3	3	3				
Rated operational	voltage Ue (V AC	:)	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type	230–400–440 Multi-voltage type				
High-speed type	Rated current s	sensitivity I∆n (mA)	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable	30•100•500 Selectable				
	Max. operating	time at 5I∆n (s)	0.04	0.04	0.04	0.04				
Earth-leakage indic	ation system		Button	Button	Button	Button				
		AC440V	5/2	2.5/1	7.5/4	10/5				
Rated breaking cap	bacity (kA)	AC400V	5/2	5/2	7.5/4	10/5				
IEC60947-2 (Icu/Ic	s)	AC380V	5/2	5/2	7.5/4	10/5				
		AC230V	10/5	7.5/4	15/8	25/13				
Standard Attached	Parts (Front con	nection)	Insulatior	Mounting screw: barrier: (3P: 2pcs) e	M4×0.7×55 (2pcs) excluding models of	NV63-CW				

■Earth-Leakage Tripping Characteristics

Ground-fault current(% of rated current sensitivity)

Temperature Characteristics

■Internal Wiring Diagram

• NV63-CW, NV63-SW, NV63-HW, NV32-SW

Front connection

Plug-in

Earth-Leakage Circuit Breakers

NV125-CW NV125-SW NV125-HW

Type	NV125-CW

■Operating Characteristics

■Earth-Leakage Tripping Characteristics

Ground-fault current (% of rated current sensitivity)

External Accessories

	Accessories		Type name	Reference page		Accessorie	s	Type name	Reference page
		F	F1SW	07	M	Mechanical interlock		ML05SW/2 (*4)	22
	Operating	S	S1SW	21				101-055005 (4)	32
	handle	V	V1SW (*1)	28	er	Small	TC-S	TCS-1SW3W (*4)	
		R	R1SW		cov	Large	TC-L	TCL-1SW3W (*4)	
ure	Dustproof	S	NFS-1SW	20	nal	Skeleton	TTC	TTC-1SW3(*4)	30
losi		I	NFI-1SW	29	E	Rear	BTC	BTC-1SW3W (*4)	1
Ĕ	Waterproof	W	NFW-1SW/1HW		ГĔ	Plug-in	PTC	PTC-1SW3W (*4)]
		LC LC-1SW			IEC 35mm rail				22
Handle lock		(*2)	HLF-1SW	22	n	nounting adap	ters	Dine 1300 (4)	32
	device	HL	HLN-1SW	32		Electrical			20
		HL-S	HLS-1SW]	operation device			IVIDS-INV 15VVE (*3)	30

Notes: (*1) Attach the letter "F" to the end of designation for a fixed type. (*2) HLF types are used for OFF-lock, and HLN types for ON-lock. (*3) Specify the working voltage. (*4) The designation depends on the number of poles. Refer to the reference page.

Series			C series	S se	ries	H se	eries	
Group			WSS G2	WSS	G2	WSS	6 G2	
Frame size			125	12	5	125		
Type name			NV125-CW	NV125-SW		NV12	5-HW	
Rated current In (A	.mp.)		63 80 100 125	16 2 40 5 80 100	16 20 32 40 50 63 80 100 (125) ^{*1}		0 32 0 63 0 125	
Number of poles			3	3	4	3	4	
Rated operational	230–400–440 Multi-voltage type	230–40 Multi-volt	0–440 age type	230–40 Multi-volt	00–440 age type			
High-speed type	Rated current	sensitivity I∆n (mA)	30•100•500 Selectable	30•100•500 Selectable		30•100•500 Selectable		
	Max. operating	j time at 5l∆n (s)	0.04	0.0)4	0.0	04	
	Rated current	sensitivity I∆n (mA)	100•300•500 Selectable	100•300•500 Selectable		100•300•500 Selectable		
Time-delay type	Max. operating	time at 5l∆n (s)	0.45•1.0•2.0 Selectable	0.45 • 1.0 • 2.0 Selectable		0.45•1.0•2.0 Selectable		
	Inertial non-ope	rating time at 2I∆n (s)	0.1•0.5•1.0	0.1•0.5•1.0		0.1•0.	5•1.0	
Earth-leakage indic	ation system		Button	But	ton	But	ton	
Detection of the second		AC440V	10/5	25/	13	50/	25	
IEC60947-2 (Icu/Ic	s)	AC400V	10/5	30/	15	50/	25	
AC230V			30/15	50/25		100	/50	
Standard Attached	Mounting screw: M4×0.7×55 (3P: 2pcs, 4P: 4pcs) Insulation barrier: (3P: 2pcs, 4P: 3pcs) excluding models of NV125-CW							

30mir 20mir 14mir 10mir

6mi 4mi 2mi

30s 20s 10s 5s

2s 1s 0.5s

0.2s 0.1s 0.05s

0.02s 0.01s

Operating time

NV125-SW 16A~20A NV125-HW 16A~20A

× 100% of Rated current

OAX

OEAL

Remark: (1) refer to 24.

Left-side

mounting

•AL

MG

●

Internal Accessories

Operating handle

 \rightarrow

Lead wire direction

ļ

Right-side

🕅 иνт

➡ твм

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*1: 3P only Note: The time-delayed types will be produced when they have the current specifications of 20A or more.

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⇒

Temperature Characteristics

Internal Wiring Diagram

• NV125-CW, NV125-SW, NV125-HW

Plug-in

Remark: NV125-CW is available in 3-pole only.

Earth-Leakage Circuit Breakers

NV250-CW NV250-SW NV250-HW

Type NV250-CW

Operating Characteristics

Internal Accessories

Remark: (1) refer to 24.

External Accessories

	Accessories		Type name	Reference page		Accessories		s Type name	
		F	F2SW	27	Mechanical interlock		NAL.	MLOEDW2 (to)	22
	Operating	S	S2SW	21			IVII	101-033003 (3)	32
	handle	V	V2SW (*1)	28	ər	Small	TC-S	TCS-2SW3W (*3)	
		R	R2SW		COV	Large	TC-L	TCL-2SW3W (*3)	
ure	Ductorací	S	NFS-2SW (*5)	arminal 62	nal	Skeleton	TTC	TTC-2SW3 (*3)	
losi	Dustproor	1	NFI-2SW		Rear	BTC	BTC-2SW3W (*3)	20	
Ш	Waterproof	W	NFW-2SW		Ĕ	Plug-in	PTC	PTC-2SW3W (*3)	30
		LC	LC-2SW						Ì
	Handle lock device		HLF-2SW	32		Electrical			
			HLN-2SW	32	0	peration devi	се	WDS-NV2SWE (*4)	
			HLS-2SW						

Notes: (*1) Attach the letter "F" to the end of designation for a fixed type. (*2) HLF types are used for OFF-lock, and HLN types for ON-lock. (*3) The designation depends on the number of poles. Refer to the reference page. (*4) Specify the working voltage. (*5) NV250-HW model cannot be produced.

Series			C series	S se	ries	H se	eries
Group			WSS G3	WSS	G3	WSS	S G3
Frame size			250	25	60	250	
Type name			NV250-CW	NV250-SW		NV25	0-HW
Rated current In (A	.mp.)		125 150 175 200 225 250	125 150 175 200 225 250	125 150 175 200 225	125 15 200	i0 175 225
Number of poles			3	3	4	3	4
Rated operational voltage Ue (V AC)			230–400–440 Multi-voltage type	230–40 Multi-volt	230–400–440 230–40 Multi-voltage type Multi-volta		00–440 tage type
High-speed type	Rated current	sensitivity l∆n (mA)	30•100•500 Selectable	30•10 Selec	0•500 table	30•10 Selec	0•500 ctable
	Max. operating	i time at 5l∆n (s)	0.04	0.0)4	0.	04
	Rated current	sensitivity I∆n (mA)	100•300•500 Selectable	100•300•500 Selectable		100•300•500 Selectable	
Time-delay type	Max. operating	i time at 5l∆n (s)	0.45 • 1.0 • 2.0 Selectable	0.45•1.0•2.0 Selectable		0.45•1.0•2.0 Selectable	
	Inertial non-ope	rating time at 2l∆n (s)	0.1•0.5•1.0	0.1•0.5•1.0		0.1•0	.5•1.0
Earth-leakage indic	ation system		Button	But	ton	But	ton
Detection and		AC440V	15/8	25/	13	50,	/13
IEC60947-2 (Icu/Ic	s)	AC400V	18/9	30/	15	50/13	
	-,	AC230V	35/18	50/	25	100)/25
Standard Attached Parts (Front connection)			Mounting screw: M4×0.7×55 (3P: 2pcs, 4P: 4pcs) Insulation barrier: (3P: 4pcs, 4P: 6pcs)				

■Earth-Leakage Tripping Characteristics

Ground-fault current (% of rated current sensitivity)

Temperature Characteristics

Internal Wiring Diagram

• NV250-CW, NV250-SW, NV250-HW

Plug-in

Remark: NV250-CW are available in 3-pole only.

Earth-Leakage Circuit Breakers

NV250-SEW NV250-HEW

Type NV250-SEW

Standard Attache

Operating Characteristics

■Internal Accessories

1) Parenthesized dimensions represent those for models with PAL, EAL, or TBM. Note: (* Flush-mounted models with PAL, EAL, or TBM have an outside view different from the standard outside view, which will be available upon request. Remark: (1) refer to 24.

■External Accessories

	Accessories		Type name	Reference page	Accessories		ories Type name		Reference page			
		F	F2SW	W 27 Mechanical MI		27		A Mechanical		ML 05 814/2 (to)	22	
	Operating	S	S2SW	21		interlock	IVII	WI-055W5 (3)	32			
	handle	V	V2SW (*1)	28 5		Small	TC-S	TCS-2SW3W (*3)				
		R	R2SW	20	cov	Large	TC-L	TCL-2SW3W (*3)				
an	Ductored	S	NFS-2SW (*5)		Terminal	Skeleton	TTC	TTC-2SW3 (*3)				
Sos	Dustproor	Ι	NFI-2SW	29		Rear	BTC	BTC-2SW3W (*3)	20			
ш	Waterproof	W	NFW-2SW			Plug-in	PTC	PTC-2SW3W (*3)	30			
		LC	LC-2SW									
Handle lock		(*2)	HLF-2SW	32		Electrical						
	device		HLN-2SW	52	0	peration devi	се	MDS-NVE2SWE (*4)				
		HL-S	HLS-2SW									

(*1) Attach the letter "F" to the end of designation for a fixed type.
 (*2) HLF types are used for OFF-lock, and HLN types for ON-lock.
 (*3) The designation depends on the number of poles. Refer to the reference page.

(*4) Specify the working voltage.
 (*5) NV250-HEW model cannot be produced.

Series			S series H series			
Group			WSS	G3	WSS	S G3
Frame size			25	60	25	50
Type name			NV250	NV250-SEW NV2		
Rated current In (A	.mp.)		125- Adjus	-225 stable	125– Adjus	-225 table
Number of poles			3	4	3	4
Rated operational	onal voltage Ue (V AC) 230–400 420 230–400 Multi-voltage type Multi-voltage type			00–440 tage type		
High-speed type	Rated current	Rated current sensitivity I∆n (mA)			30•100•500 Selectable	
• • •	Max. operating	time at 5l∆n (s)	0.0)4	0.	04
	Rated current	sensitivity I∆n (mA)	100•30 Selec	100•300•500 Selectable		00•500 ctable
Time-delay type	Max. operating	time at 5l∆n (s)	0.45•1.0•2.0 Selectable		0.45•1.0•2.0 Selectable	
	Inertial non-ope	rating time at 2l∆n (s)	0.1•0.	5•1.0	0.1•0	.5•1.0
Earth-leakage indic	ation system		But	ton	But	ton
		AC440V	25/	13	50,	/13
IEC60947-2 (Icu/Ic	s)	AC400V	30/	15	50	/13
····· (····	50/25		100/25			
Standard Attached	Mounting screw: M4×0.7×55 (3P: 2pcs, 4P: 4pcs) Insulation barrier: (3P: 4pc, 4P: 6pcs)					

■Earth-Leakage Tripping Characteristics

Ground-fault current (% of rated current sensitivity)

■Temperature Characteristics

Internal Wiring Diagram

• NV250-SEW, NV250-HEW

Front connection

Plug-in

Earth-Leakage Circuit Breakers

NV125-RW

Series U series Group WSS G2 Frame size 125 NV125-RW Type name 16 20 32 40 50 63 80 100 Rated current In (Amp.) Number of poles 3 230-400-440 Rated operational voltage Ue (V AC) Multi-voltage type 30•100•500 Rated current sensitivity Ion (mA) High-speed type Selectable Max. operating time at 5I Δ n (s) 0.04 100•300•500 Rated current sensitivity Ion (mA) Selectable Time-delay type 0.45•1.0•2.0 Max. operating time at 5IAn (s) Selectable 0.1•0.5•1.0 Inertial non-operating time at 2IAn (s) Earth-leakage indication system Button AC440V 125/125 Rated breaking capacity (kA) IEC60947-2 (Icu/Ics) 125/125 AC400V AC230V 125/125

Type NV125-RW

Earth-Leakage Tripping – Characteristics

4h 2h 1h 30min	High- speed type	Time-delay type 0.45s(MAX)	Time-delay type 1s(MAX)	Time-delay type 2s(MAX)
Operating time Amin Time Topeaalog current Sealog current Sealog current	urrent sensitivity ed norisperating current	Rated current sensitivity	Rated nonoeraing current Rated current sensitivity	Rélection our service de la construction de la cons
1s 6 0.5s 78 0.2s 78 0.04s 0 0.04s 0 0.02s 0 0.01s 0		nertial nonoperating time	Inertial nonoperating time -	Inertial nonoperating time
25 50 1	00 500 25 50	100 5001000	25 50 100 5001000	25 50 100 500 1000

Ground-fault current (% of rated current sensitivity)

External Accessories

	Accessories		Type name	Reference page	Accessories			Type name	Reference page
		F	F1UW	27	ж	Small	TC-S	TCS-1SW3W (*1)	
		S	S1UW		inal cove	Large	TC-L	TCL-1SW3W (*1)	
Operating handle	V	V1UW	28	Skeleton		ттс	TTC-1SW3 (*1)	30	
	R	R1UW	29	Rear		BTC	BTC-1SW3W (*1)		
Ire	Dustaroof	s	-		-	Plug-in	PTC	PTC-1SW3W (*1)	
close	Dustproor	1	-] _	Handle lock		LC	LC-1SW	
Ш	Waterproof	w	-]			(*3)	HLF-1SW	22
Mechanical interlock Electrical operation dev		мі	MI-05SW3 (*1)	32	device		HL	HLN-1SW	32
		evice	(*2)	30			HL-S	HLS-1SW	

Notes: (*1) The designation depends on the number of poles. Refer to the reference page. (*2) An order should be placed at the same time as an order of circuit breaker main body. (*3) HLF types are used for OFF-lock, and HLN types for ON-lock.

■Internal Accessories –

Remark: (1) refer to 24.

■Temperature Characteristics

Internal Wiring Diagram

Front connection

Plug-in

Earth-Leakage Circuit Breakers

NV250-RW

Series			R series
Group			WSS G3
Frame size			250
Type name			NV250-RW
Rated current In (A	.mp.)		125 150 175 200 225
Number of poles			3
Rated operational	230–400–440 Multi-voltage type		
High-speed type	Rated current	30•100•500 Selectable	
	Max. operating	0.04	
	Rated current	100•300•500 Selectable	
Time-delay type	Max. operating	0.45•1.0•2.0 Selectable	
	Inertial non-ope	rating time at 2l∆n (s)	0.1•0.5•1.0
Earth-leakage indic	ation system		Button
Deted breeking eer		AC440V	125/125
IEC60947-2 (Icu/Ic	s)	AC400V	125/125
(•	AC230V	125/125

Type NV250-RW

Operating Characteristics

Internal Accessories

Remark: (1) refer to 24.

External Accessories

_										
	Accessories		Type name	Reference page	Accessories		ies Type name		Reference page	
		F	F2UW	27	7 Mechanical interlock MI MI-05SW3 (*1)		24			
	Departing bandle	S	S2SW	21			IVII	IVII-055VV3 (*1)	34	
Operating handle		V	V2UW	28	er	Small	TC-S	TCS-2SW3W (*1)		
			R2UW	29	0 S	S Large		TCL-2SW3W (*1)		
lre	Dustproof	S	-		nal I	Skeleton	TTC	TTC-2SW3 (*1)		
losi	Dustproor	I	-	-	- Ē	Rear	BTC	BTC-2SW3W (*1)		
ШШ	Waterproof	W	-]	⊢e	Plug-in	PTC	PTC-2SW3W (*1)	30	
		LC	LC-2SW							
Line allo in allo davida a		(*2)	HLF-2SW	22		Electrical		(*2)		
	Handle lock device		HLN-2SW	32		operation devi	ice	(3)		
		HL-S	HLS-2SW]						

Notes: (*1) The designation depends on the number of poles. Refer to the reference page. (*2) HLF types are used for OFF-lock, and HLN types for ON-lock. (*3) An order should be placed at the same time as an order of circuit breaker main body.

Earth-Leakage Tripping Characteristics

■Ambient Compensating Curve

Internal Wiring Diagram

• NV250-RW

Front connection

Plug-in

UL489 Listed Molded-Case Circuit Breakers

NF50-SWU

Type NF50-SWU

■Operating Characteristics

■Internal Accessories

■External Accessories

Accessories		Type name	Ace	Accessories			
Operating handle	F	F05SWU2P F05SWU	Mechanical	interlock	МІ	MI-05SWU	
	s	S05SWU					
	V	V05SWUF (*1)	Terminal	Large	TC-L	TCL-05SWU2	
Handle lock device	HL	HLF-05SWU	cover			TCL-05SWU3	

Note: (*1) Adjustable types can be produced upon request.

Series S series WSS G1 Group Frame size 50 NF50-SWU Type name 5 10 15 20 30 40 50 Rated current In (Amp.) Number of poles 2 3 Rated voltage (AC V) 240 UL489 AC 240V 10 Rated braking cpacity (kA) Rated insulation voltage Ui (V) 600 7.5/4 500V IEC60947-2 JIS C 8201-2 (Icu/Ics) 440V 7.5/4 AC 7.5/4 400V 230V 15/8 Mounting screw: M4×0.7×55 (2pcs) Insulation barrier: (2P: 2pcs, 3P: 4pcs), Insulation board: (1pc) Standard attached parts

■Temperature Characteristics

● NF50-SWU

UL489 Listed Molded-Case Circuit Breakers

NF100-CWU NF100-SWU

Serie	es		C series		S series			
Grou	q			WSS	6 G2	WSS	62 G2	
Fran	ne size			10	00	10	00	
Туре	e name			NF100	-CWU	NF100-SWU		
Rate at ar	ed current In (Am nbient temperatu	p.) ire 40°C (IEC30°C	C)	50 60 75 100		15 20 30 40 50 60 75 100		
Num	ber of poles			2 3		2	3	
бL	UL489	Rated voltage (A	240		480Y/277			
		AC	480Y/277V	-		22		
raki		AC	240V	10		35		
(kA)		Rated insulation	600		690			
circu			690V	-	-	8/4		
ort-o acit	IEC60947-2		500V	7.	5/4	18	3/9	
cap	JIS C 8201-2	AC	440V	10)/5	25/13		
ated	(Icu/Ics)		400V	10)/5	30	/15	
с С			230V	30	/15	50,	/25	
		DC	250V	7.	5/4	15/8		
Standard attached parts			Mounting screw: M4×0.7×55 (2pcs) Insulation barrier: (2P: 2pcs, 3P: 4pcs),					

Type NF100-SWU

■Operating Characteristics

■Internal Accessories

■Ambient Compensating Curve

■External Accessories

Accessories		Type name	Accessories			Type name
Operating handle	F	F1SWU2P F1SWU	Mechanical interlock MI MI-			MI-05SWU
	S	S1SWU				
	V	V1SWU (*1)	Terminal	Large	TC-L	TCL-1SWU2 TCL-1SWU3
Handle lock device	HL	HLF-1SWU	cover			

Note: (*1) Attach the letter "F" to the end of designation for a fixed type.

• NF100-CWU, NF100-SWU

UL489 Listed Molded-Case Circuit Breakers

NF225-CWU

Type NF225-CWU

Serie	es		C series			
Grou	ıp		WSS G3			
Fram	ne size			225		
Туре	e name			NF225-CWU		
Rate at an	ed current In (Am nbient temperatu	p.) ıre 40°C (IEC30°C	125 150 175 200 225			
Num	ber of poles		3			
бu	111.490	Rated voltage (A	AC V)	240		
raki	0L409	AC	240V	35		
(kA)	(KA)	Rated insulation	voltage Ui (V)	600		
ies		AC	500V	10/5		
ort-o acit	IEC60947-2		440V	15/8		
l she cap	(Icu/Ics)		400V	18/9		
ated			230V	35/18		
گ		DC	250V	10/5 (*1)		
Stan	dard attached pa	arts	Mounting screw: M4×0.7×55 (2pcs) Insulation barrier: (4pcs), Terminal cover: (1 set),(*2) Insulation board: (1pc)			

Notes: (*1) Use either two poles. When wired as shown at the bottom of page 13, the models can be used for up to 400 V DC. (*2) The standard configuration contains a protection cover and adopts the IP20 (finger

protection) structure.

Operating Characteristics

Internal Accessories

 Operating handle Left-side mounting + _____ Right-side ● AL mounting Lead wire O AX SHT or UVT direction

■Ambient Compensating Curve

External Accessories

Accessories		Type name	Accessories			Type name
	F	F2SWU	Machanical interleals		N 41	MLOFEWILL
Operating handle	S	S2SWU	wechanical	Interiock	IVII	101-055000
	V	V2SWU (*1)	Terminal	Large	TC-L	TCL-2SWU3
Handle lock device	HL	HLF-2SWU	cover			

Note: (*1) Attach the letter "F" to the end of designation for a fixed type.

● NF225-CWU

Front connection

UL489 Listed Molded-Case Circuit Breakers

IF-SFW	Serie	es		S se	H series			
	Group				WSS G4	WSS G4	WSS G4	
NF-SJW	Fran	ne size			150	250	250	
	Туре	Type name				NF-SJW	NF-HJW	
NF-HJW	Rate at ar	Rated current In (Amp.) at ambient temperature 40°C (IEC30°C)				(125) (150) 175 200 225 250	125 150 175 200 225 250	
	Num	Number of poles				3	3	
(Rated voltage (AC V)		600Y/347	600Y/347	600Y/347	
	p	111 490	AC	600Y/347V	14	14	18	
	aki	IEC60947-2 JIS C 8201-2		480V	35	35	50	
	₹ pr			240V	65	65	100	
	s (F		Rated insulation voltage Ui (V)		690	690	690	
	iti ei		AC	690V	8/8	8/8	15/15	
And Address of the owner o	pac			500V	30/30	30/30	36/36	
0.1	a st			440V	36/36	36/36	50/50	
	ated	(Icu/Ics)		400V	36/36	36/36	50/50	
	l 22			230V	85/85	85/85	100/100	
			DC	250V (*1)	20/20	20/20	20/20	
and and and	Stan	Standard attached parts				Mounting screw: M4×0.7×73 (4pcs) Insulation barrier: (4pcs), Insulation board: (1pc)		

IX.(50A

Operating Characteristics (UL489) NF-SFW 50A 150A

(50A Ma

30

15 20

■Operating Characteristics

30 20

Ambient temperature (°C) (rated ambient 40°C)

2h

1h

30min 20min 14min 10min

6min 4min

2min

1min

30s 20s

10s

5s

2s

1s

0.5s

0.2s

0.1s

0.05s

0.02s

80 [

Operating time

NF-SFW, NF-SJW, NF-HJW

35 M4×0.7 taps of 5mm-dia. hole

Drilling plan

ø4.5 63

3-FRONT

Outline and dimensions (mm (inch)) Type NF-SFW,NF-SJW,NF-HJW

External Accessories

Accessories		Type name	Ace	Type name		
.	F	F2GSWU	Machanical interleak		N AL	MLOFOWLL
handle	S	S2GSWU			IVII	101-055000
	V	V2GSWU (*1)	Terminal	Large	TC-L	TCL-2GSWU3
Handle lock device	HL	HLF-2GSWU	cover			

Note: (*1) Attach the letter "F" to the end of designation for a fixed type.

7. Ordering Information

Molded-Case Circuit Breakers

Earth-Leakage Circuit Breakers

Service Network

Country / Region	Company	Address	Telephone	
Australia	Mitsubishi Electric Australia Pty. Ltd.	348 Victoria Road, Rydalmere, N.S.W. 2116, Australia	612-9684, 7586	
Belgium	Emac S.A.	Industrialaan 1, B-1702 Groot-Bijgaarden, Belgium.	32-(0)2-4810211	
Chile	RHONA S.A.	Vte. Agua Santa 4211 Casilla 30-D (P.O. Box) Viña Del Mar. Chile	(32)-611896	
	SHANGHAI SETSUYO TRADING CO.,LTD.	Building of Innovation Center, Room No. 406A, 680 Guiping Road Shanghai, P.R.China	021-6485-6611	
China	RYODEN INTERNATIONAL LTD.	(Shanghai) 3F, Block 5, 103 Cao Bao Road, Shanghai, China	021-6475-3228	
Colombia	Proelectrico Representaciones S.A.	Cra 53 No 29C-73 U.I.C Medellin. COLOMBIA.	574-235-00-28	
Denmark	Louis Poulsen CO. A/S	Geminivej 32, DK-2670 Greve, Denmark.	45-(0)43-95-95-95	
Egypt	CAIRO ELECTRICAL GROUP	9 Rostoum Street Garden City, APT. 5, P.O. BOX: 165-11516, Cairo-Egypt.	20-2-7961337	
Germany	Mitsubishi Electric Europe B.V. German Branch.	Gothaer Strasse 8, 40880 Ratingen, Germany.	49-(0)2102-4860	
Greece	Drepanias Antonios S.A.	52, Arkadias STR.GR 121 32. Peristeri Athens Greece.	30(1)57 81 599 699	
Hong Kong	Ryoden international Ltd.	10/F Manulife Tower 169 Electric Road North Point. Hong Kong.	28878870	
Indonesia	P.T.SAHABAT INDONESIA.	JL Muara Karang Selatan Blok A/Utara No.1 kav. NO.11 P.O. Box 5045/Jakarta/11050. Jakarta Indonesia.	021-6621780	
Ireland	Mitsubishi Electric Europe B.V. Irish Branch.	Westgate Business Park, Ballymount, Dublin 24, Ireland.	353-(0)1-4505007	
Italy	Mitsubishi Electric Europe B.V. Italy	C.D. Colleoni-P. Perseo Ing. 2, Via Paracelso 12 1-20041 Agrate Brianza (M1)	39-(0)39 60 531	
Korea	HAN NEUNG TECHNO Co., Ltd.	2 Fl. Dong Seo Game Channel Bldg ., 1F 660-11 Deungchon-Dong, Kanguseo-Ku, Seoul, 157-030 Korea	017-255-0174	
Kuwait	SALEM M AL-NISF ELECTRICAL CO.W.L.L.	P.O. Box 4784. Safat. 13048 Kuwait.	965-484-5660	
Lao PDR	SOCIETE LAO IMPORT-EXPORT	43-47 Lane Xang Road P.O. BOX 2789 VT Vientiane Lao PDR.	21-215043, 21-215110	
Lebanon	COMPTOIR D'ELECTRICITE GENERALE INTERNATIONAL	Cebaco Center-Block A. Autostrade Dora, P.O. BOX: 90-1314 Beirut-Lebanon.	961-1-240430	
Myanmer	PEACE MYANMAR ELECTRIC CO., LTD.	No. 216, Bo Aung Gyaw Street, Botataung 11161, Yangon, Myanmar.	951-295426	
Nepal	Watt & Volt House Co., Ltd.	KHA 2-65, Volt House Dilli Bazar Post Box: 2108, kathmandu, Nepal	977-1-411330	
Netherlands	Imtech Marine & Industry	Postbox 5054, NL-3008 AB-Rotterdam, Netherlands.	31-(0)10 487 19 11	
New Zealand	Melco Sales (N.Z.) Ltd.	1 Parliament Street Lower Hutt. New Zealand.	644-569-7350	
Norway	SCANELEC	Leirvikasen 43B, N5020 Bergen, Norway.	47-55-506000	
Pakistan	Prince Electric Co.	16 Brandreth Road Lahore 54000. Pakistan.	042-7654342	
Peru	I.T.E.	Ingenieros s.a. Paseo de la Republica 3573 Lima 27. Peru.	(1) 221-2710	
Philippines	EDISON ELECTRIC INTEGRATED, INC.	24th Fl. Galleria Corporate Center Edsa Cr, Ortigas Ave. Quezon City, Metro Manila. Philippines.	02-643-8691	
Poland	MPL Technology Sp zo.o.	ul. Wroclawska 53, PL-30011 Kraków, Poland.	48-(0)12 632 28 85	
Saudi Arabia	CENTER OF ELECTRICAL GOODS	Al-Nabhaniya Street-4th Crossing, Al-Hassa Road, P.O. BOX: 15955, Riyadh 11454, Saudi Arabia.	966-1-4770149	
Singapore	MITSUBISHI ELECTRIC ASIA PTE LTD.	307 Alexandra Road #05-01/02 Mitsubishi Electric Building Singapore 159943	65-473-2308	
Slovenia	INEA d.o.o.	Ljubljanska 80, SI-61230 Domzale, Slovenia.	386-(0)17 21 80 00	
South Africa	M.S.A.MANUFACTURING (PTY) LTD.	Bramley 2018, Johannesburg, South Africa.	27-11-444-8080	
Spain	Mitsubishi Electric Europe B.V. Spanish Branch.	Polingono Industrial "Can Magi", Calle Joan Buscalla 2-4, Apartado de Correos 420,08190 Sant Cugat del Valles, Barcelona, Spain.	34-93-565-3160	
Sweden	Euro Energy Components AB	Box 103 48 S-434 24 Kungsbcka, Sweden.	46-(0)300-69 00 40	
Switzerland	Trielec A G	Mühlentalstrasse 136, 8201 Schaffhausen, Switzerland	41-(0)52-6258425	
Taiwan	Setsuyo Enterprise Co., Ltd.	5F, NO. 105 Wu-Kung 3rd rd., Wu-Ku Hsiang, Taipei Hsien Taiwan	02-2298-8889	
Thailand	UNITED TRADING & IMPORT CO., LTD.	77/12 Bumrungmuang Road, Klong Mahanak, Pomprab Bangkok 10100.	223-4220-3	
Turkey	HEDEF DIS Tic. ve Musavirlik LTD. STI	Barbaros Bulvari Gaziumurpasa sok. 9/4, TR-Balmumcu-Istanbul, Turkey.	90-(0)212-2754876	
U.K.	Mitsubishi Electric Europe B.V. UK-Branch.	Travellers Lane, Hatfield, Herts, AL10 8xB, U.K.	44-(0)1707-276-100	
Uruguay	Fierro Vignoli S.A.	AV. URUGUAY 1274, Montevideo. Uruguay.	598-2-92-08-08	
Venezuela	ADESCO C.A.	Lle 8, Calpon Elinsu, La Urbina-EDO, Miranda P.O. BOX 78034 Caracas 1074A., Venezuela	58-2-241-7634	
Vietnam	Sa Giang Techno Co., Ltd.	207/4 Nguyen Van Thu St., Dist 1, Ho Chi Minh City, Vietnam	848-821-6453	

Safety Tips : Be sure to read the instruction manual fully before using this product.

