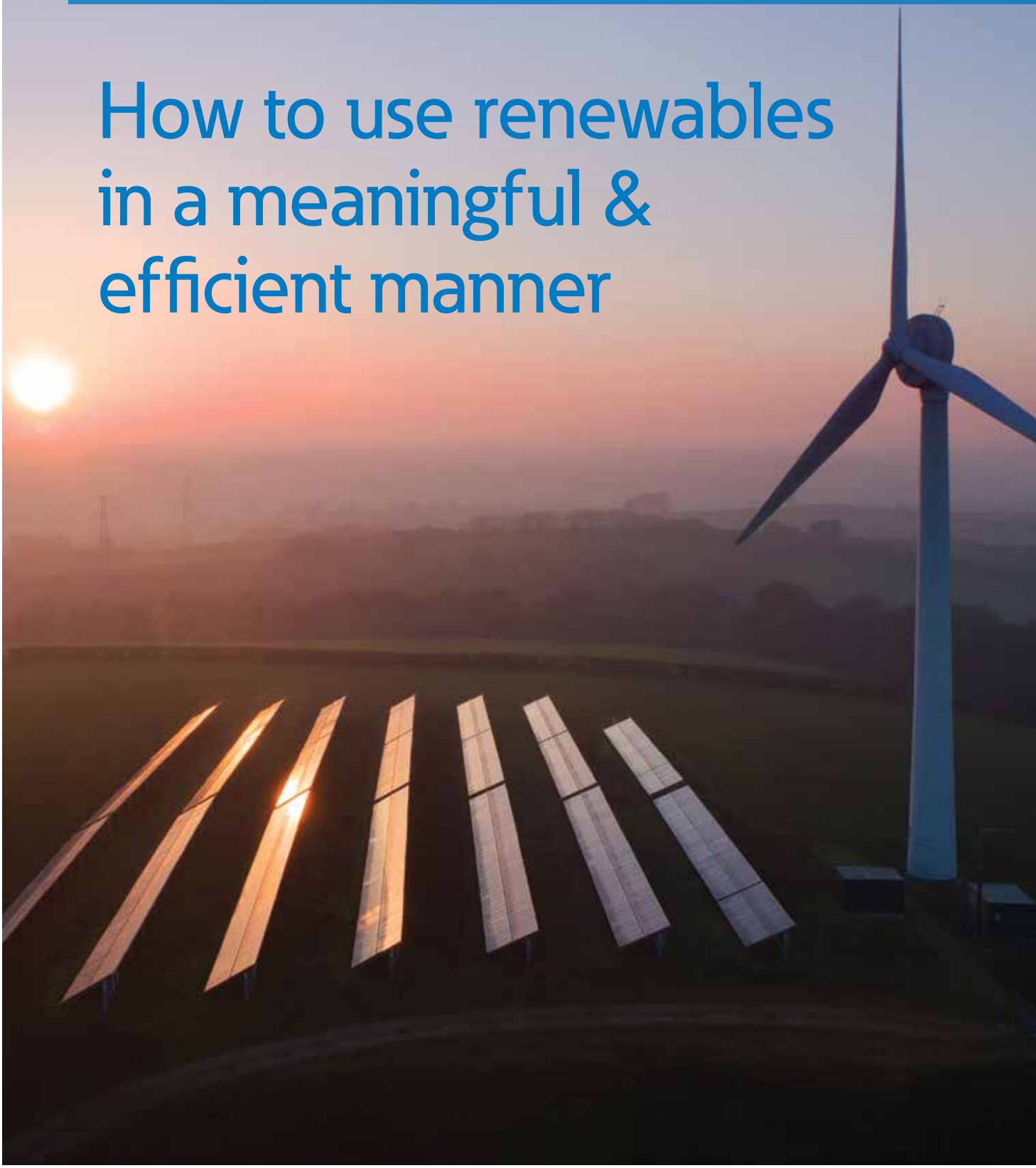
SOL30-Safety
PKZ-SOL, P-SOL
NAS Network and system protection

MOELLER
SERIES

How to use renewables in a meaningful & efficient manner



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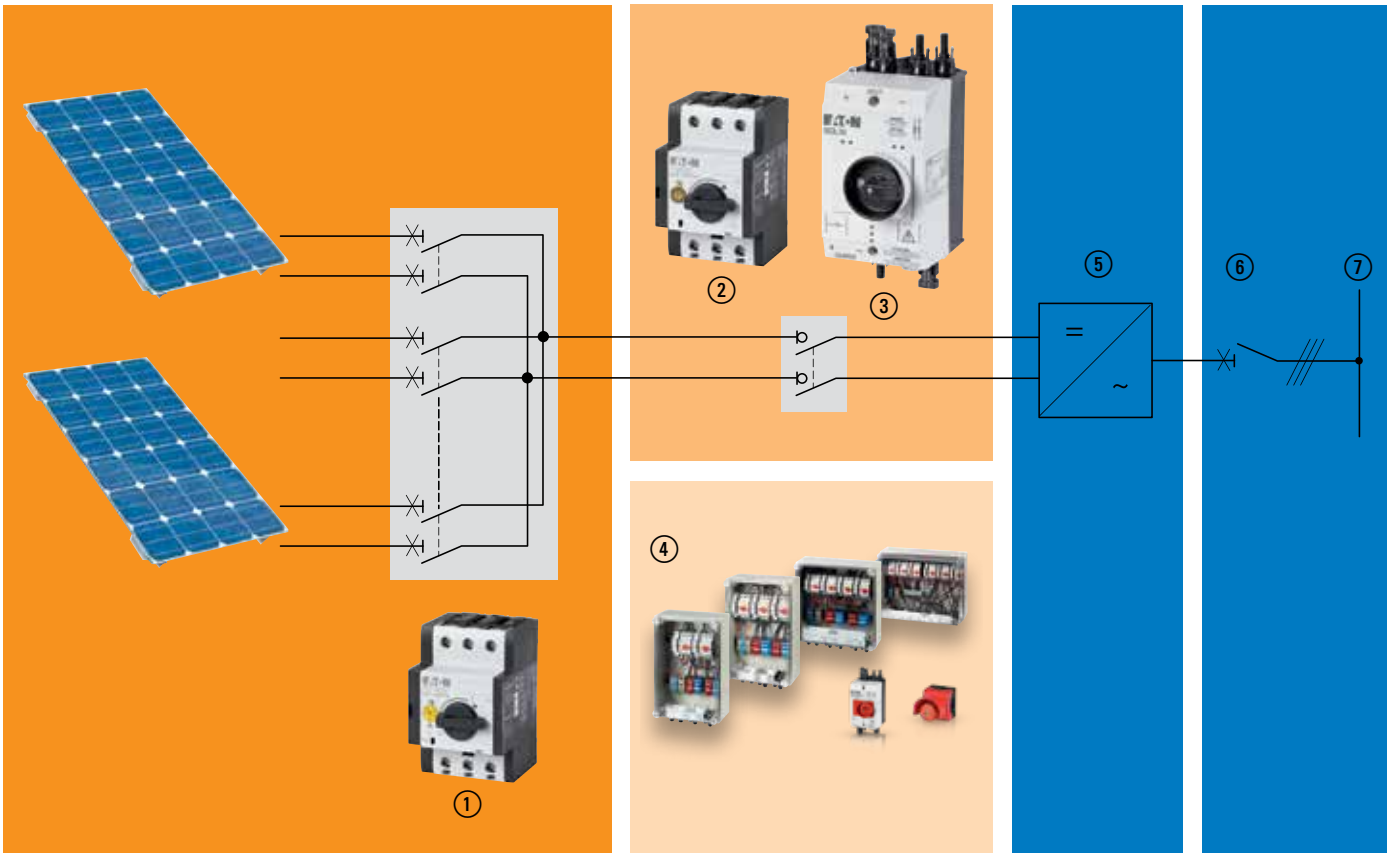

Photovoltaic systems

① DC string circuit breaker
② Switch-disconnector
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⑤ Inverter
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A distinction needs to be made between off-grid and grid-connected photovoltaic systems. Grid-connected systems feed the electricity they generate directly into the power grid, which eliminates the need for costly intermediate storage. Such a system consists of solar cells, one or more inverters and a protective device that automatically switches off the system in the event of power issues. As a result, grid-connected photovoltaic systems require the use of highly reliable and safe components.

DC string circuit breakers

- Protect PV modules from fault currents; in large systems, for example, they prevent backfeeding from intact modules to a module affected by a short circuit.
- After a trip, they can be returned to operation immediately once the cause of the trip has been rectified.
- These open circuit breakers are intended for installation in customer-specific generator junction boxes.
- A wide range of tripping currents can be selected.
- When installed in an enclosure, they are suitable for voltages up to 900 V DC.

The P-SOL switch-disconnectors are designed for installation in customer-specific enclosures or inverters.

- Separate rotary handles and shaft extensions allow for flexible installation.
- An auxiliary contact block can be attached to signal the switching state.
- Shunt and undervoltage releases are available for remote tripping.
- As per the VDE 0100-712 standard (June 2006), they need to be installed between the PV module and the inverter.
- Enclosed and open switch-disconnectors (for installation inside an enclosure) are available for voltages up to 1000 V DC.
- Can be used as separate switching devices in line with the VDI 6012 guideline, for example to safely de-energize a defective inverter.
- Thanks to two-pole switching, they are also suitable for unearthed systems.

The SOL switch-disconnectors come in enclosures and are immediately ready for installation. Available with two or four strings and MC4 or metric connections, they can be easily integrated into a wide range of systems.

- The IP65 enclosure also enables outdoor installation.
- The devices are lockable to ensure safety in the event of an emergency.
- An integrated pressure compensation element prevents condensation, which might otherwise lead to flashover-induced malfunctions.

Fireman's switches

- Fireman's switches are a type of DC switch-disconnector that isolates the cables between the inverter and the solar modules.
- They thus enable firefighters to extinguish fires safely.
- In addition to the **SOL30-Safety** switch for small systems, we also offer ready-to-connect fireman's switches in which two, three, four or six switch-disconnectors are combined in a single enclosure.
- The individual strings can be fed separately into the inverter,
- which enables the use of multiple MPP trackers and helps to optimize inverter performance.

Central network and system protection (NAS) according to VDE-AR-N 4105 with contactors for the power range from 30 to 130 kVA

- Undervoltage/overvoltage monitoring
- Underfrequency/overfrequency monitoring
- Power quality monitoring (10-minute mean value)
- Vector-shift monitoring can be added
- Single-fault proof
- Self-test
- Default settings according to VDE-AR-N 4105, values can be changed
- Alarm counter, alarm total time
- Sealing option and code protection
- Total switch-off time < 150 ms
- Low internal consumption
- Type-tested
- For all network configurations

General information

- The optional A-PKZ0 shunt release or U-PKZ0 undervoltage release enables remote disconnection, for example in the event of fire.
- The optional NHI-E-PKZ0 auxiliary contact signals the switching state.

PKZ-SOL string circuit breaker

The PKZ-SOL string circuit-breakers are a fuseless alternative for protection against short-circuit currents. Thanks to their variable tripping range, they can be optimally adjusted to the actual short-circuit current of the string. The thermal release will already respond if the current is exceeded by a factor of 1.05 to 1.3, while the magnetic release will trip at six times the current. Open string circuit breakers are designed for installation in customer-specific generator junction boxes.

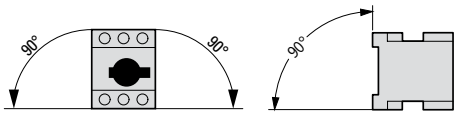
The optionally available U-PKZ0 undervoltage release enables remote disconnection, for example in the event of fire. The attachable NHI-E-PKZ0 auxiliary contact signals the switching state. String circuit breakers offer a distinct advantage over fuses because they are immediately ready for operation after they have tripped and the cause has been rectified.

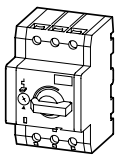
In accordance with IEC/EN 60947-2 (section 4.7.3), the setting scale of the circuit breaker only shows the current values of the built-in overload release.

The documentation contains a diagram that explains the exact relationship between the tripping current of the protective device and the short-circuit current of the PV modules.

- Rated operational voltage: 900 V DC
- Rated currents of 12 A, 20 A and 30 A
- Permissible short-circuit currents Isc in the string: from 1.6 A to 22 A

Facts and figures

			PKZ-SOL12	PKZ-SOL20	PKZ-SOL30
Rated operational current at DC-21A	I_e	A	12	20	30
No. of poles			2	2	2
Rated operational voltage	U_e	V DC	900	900	900
Thermal release			1.05 - 1.3 x I_e		
Electromagnetic release			6 x I_e		
Standards and regulations			IEC/EN 60 947-2		
Weather resistance			Constant damp heat, as defined in IEC 60068-2-78 Cyclic damp heat, as defined in IEC 60068-2-30		
Ambient temperature range					
Open		°C	-25 – 60	-25 – 60	-25 – 60
Installation position					
Dimensions					
Width		mm	58	58	58
Height		mm	93	93	93
Depth		mm	76	76	76
Mounting type					
DIN rail			35 mm	35 mm	35 mm
Screw-mounted			–	–	–
Weight		kg	0.32	0.32	0.32
Terminals					
Flexible with ferrule		mm^2	1 x (1-6)	1 x (1-6)	1 x (1-6)
		mm^2	2 x (1-6)	2 x (1-6)	2 x (1-6)
Solid or stranded		AWG	18 - 14	18 - 14	18 - 14
Internal resistance		mΩ	31	12	7



DC string circuit breakers, open

Rated operating voltage U_e = 900 V DC
Protection class II
2-pole

12	5 - 9	**PKZ-SOL12** 120937
20	9 - 15	**PKZ-SOL20** 120938
30	15 - 22	**PKZ-SOL30** 120939

P-SOL / SOL DC switch-disconnectors

The open P-SOL and the enclosed SOL switch-disconnectors safely switch off DC currents between the PV generator and the inverter in photovoltaic systems. These special devices are highly versatile and cover operating currents of 20 A, 30 A (26 A) and 60 A at 1000 V DC.

As no polarity is specified, they can be installed across a wide variety of distribution systems. In addition, switch-disconnectors can also be used as separate switching devices, for example to safely disconnect a defective inverter from the power supply.

Thanks to two-pole switching, they are also suitable for use in unearthed systems. With their pre-wired, out-of-the-box functionality and IP65 enclosure, they are ideal for outdoor use.

P-SOL DC switch-disconnectors

The open P-SOL switch-disconnectors are designed for installation in customer-specific enclosures or inverters. Separate rotary handles and shaft extensions allow for flexible installation. An auxiliary contact block can be attached to signal the switching state. Shunt and undervoltage release modules are available for remote tripping.

SOL DC switch-disconnectors

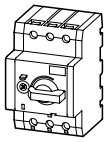
SOL switch-disconnectors are available with two or four strings and two common types of connectors. MC 4 or metric cable glands allow easy integration into various system designs. An integrated pressure compensation element prevents condensation, which might otherwise lead to flashover-induced malfunctions.

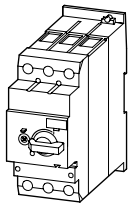
- Rated operational voltage: 1000 V
- Utilization category: DC-21A, DC-PV1, DC-PV2
- P-SOL: operating currents of 20 A, 30 A (26 A) and 60 A
- SOL: rated operational current Ie of 20 A or 30 A (26 A)
- Various connector types are available: MC4 or metric cable glands
- Versions with 2, 3 or 4 strings (input) are available
- IP65 degree of protection

Facts and figures

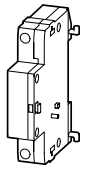
				P-SOL20	P-SOL30	P-SOL60
Rated operational current at DC-21A		I_e	A	20	26	63
Rated operational current at DC-PV1				20	26(30)*	63
Rated operational current at DC-PV2				10	10	63
No. of poles				2	2	2
Rated operational voltage		U_e	V DC	1000	1000	1000
Isolating characteristics				Yes	Yes	Yes
Standards and regulations				IEC/EN 60 947-3 UL 508, CSA-C22.2 No. 14-10		
Mechanical service life		Number of operations		100,000	100,000	30,000
Electrical service life		Number of operations		100,000	100,000	30,000
Max. mechanical operating frequency			S/h	120	120	120
Weather resistance				Constant damp heat, as defined in IEC 60068-2-78 Cyclic damp heat, as defined in IEC 60068-2-30		
Ambient temperature range						
	Open		°C	-25 – 60	-25 – 60	-25 – 60
Installation position				Any	Any	Any
Dimensions						
	Width		mm	58	58	55
	Height		mm	93	93	140
	Depth		mm	76	76	160
Mounting type						
	DIN rail			35 mm	35 mm	35 mm
	Screw-mounted			–	–	2 x M4 x 18 30 x 130
Weight			kg	0.32	0.32	1.25
Terminals						
	Flexible with ferrule		mm^2	1 x (1-6)	1 x (1-6)	1 x (1-35)
			mm^2	2 x (1-6)	2 x (1-6)	2 x (1-35)
	Solid or stranded		AWG	18 - 14	18 - 14	14 - 2
Rated short-time withstand current: 1 second as per EN 60947-3		I_{cw}	kA	0.24	0.36	0.72
Rated short-circuit making capacity to EN 60947-3		I_{cm}	kA	0.32	0.32	0.6
Internal resistance			mΩ	6	5	3

* (30A) when using the power terminal BK25/3-PKZ0 (032720) and cables with a cross-section of 10 mm² on the power supply side.



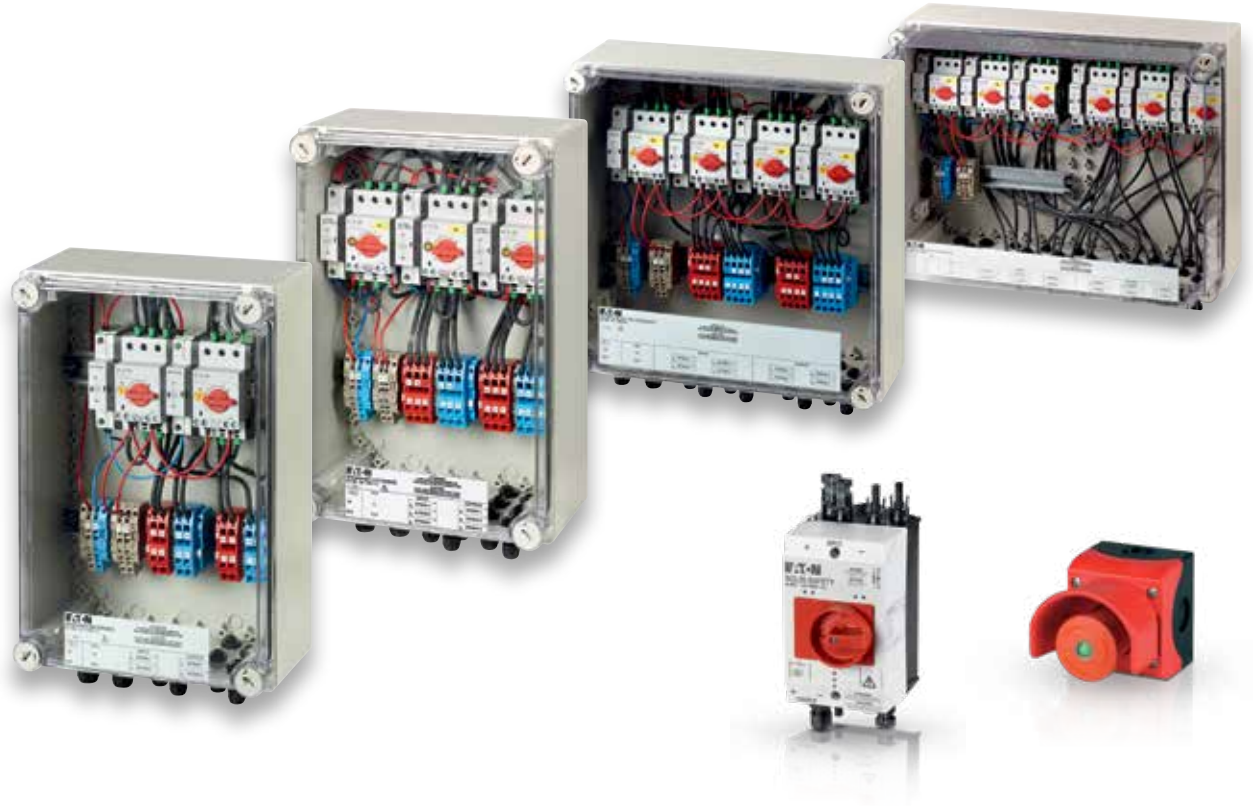


Max. rated operational current DC-21A I_e A	Permissible short-circuit current of the solar modules I_{sc} A	Part no. Article no.	Std. pack
Open DC switch-disconnectors			
Rated operating voltage U_e = 1000 V DC Protection class II 2-pole			
20	–	**P-SOL20** 120934	1 unit
30	–	**P-SOL30** 120935	
63	–	**P-SOL60** 120936	



For use with	Part no. Article no.	Std. pack
Undervoltage release		
With internal delay to bridge short-term voltage dips and fluctuations Screw terminals		
PKZM0, PKZM4, PKZM0-T, PKM0, PKZM01, PKE, P-SOL, PKZ-SOL	**P-SOL-XUV(230V50/60HZ,240V50/60HZ)** 157859	2 units
	P-SOL-XUV(110V50/60HZ,120V50/60HZ) 157860	
	P-SOL-XUV(24VDC) 157861	

SOL30X... PV fireman's switches - safety first



PV fireman's switches are a type of DC switch-disconnector that isolates the cables between the inverter and the solar modules. They enable firefighters to extinguish fires safely.

In addition to the SOL30-Safety switch for small systems, we also offer ready-to-connect fireman's switches in which two, three, four or six switch-disconnectors are combined in a single enclosure. In contrast to generator junction boxes, the individual strings are not connected in parallel, but can be separately connected to the inverter. This enables the use of multiple MPP trackers and helps to optimize inverter performance. In case of fire or danger, fireman's switches are switched off by means of undervoltage releases. The undervoltage releases respond with a delay of 600 ms. This makes it possible to bridge more than 93 % of all temporary mains interruptions and voltage drops and thus prevents yield losses due to nuisance tripping.

All fireman's switches are equipped with auxiliary contacts with one normally open and one normally closed contact. The normally closed contacts inside the combination switches are already pre-wired and mounted on terminal blocks. This means that the switching position of PV fireman's switches can be queried and indicated, for example by means of an external signal lamp.

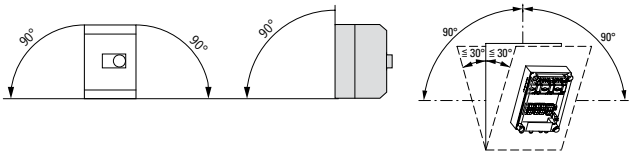
Fireman's switches are available with metric cable glands or MC4 sockets. In the case of devices with metric cable glands, all cables connect via terminal blocks. As a result, installing the devices is quick and simple.

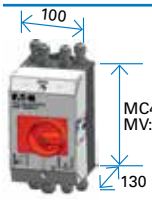
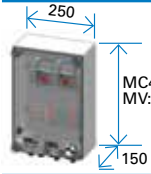
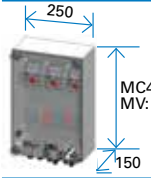
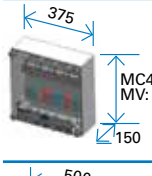
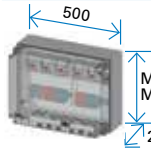
The enclosures are IP65 rated and feature a pressure compensation element to prevent condensation inside the enclosure. This makes the Eaton fireman's switches ideally suited for outdoor use, though they should nevertheless be protected against the effects of weather.

For more information, please see the brochure

"Eaton PV fireman's switches – Safety First"

Facts and figures

			SOL30-SAFETY	SOL30X...SAFETY
General information				
Standards and regulations			IEC/EN 60 947-3	IEC/EN 60 947-3
Installation position				
Operating ambient temperature		°C	-25 – 60	-25 – 60
Ambient temperature range				
Open		°C	-25 – 60	-25 – 60
Weather resistance			Constant damp heat, as defined in IEC 60068-2-78 Cyclic damp heat, as defined in IEC 60068-2-30	
Electrical				
No. of poles			2	2
Rated operational voltage	U_e	V DC	1000	1000
Rated short-circuit making capacity up to 440 V at 50/60 Hz	I_{cm}	kA	0.3	0.3
Rated short-time withstand current (t = 1 s)	I_{cw}	kA	0.7	0.7
Utilization category			DC-21A/DC-PV1/DC-PV	DC-21A/DC-PV1/DC-PV2
Overvoltage category/degree of pollution			III/3	III/3
Rated impulse withstand voltage	U_{imp}	kV	8	8
Electrical service life	Number of operations		1500	1500
Internal resistance		mΩ	7	7
Mechanical				
Degree of protection			IP65	IP65
Weight		kg	See the data sheet in the online catalog	
Mechanical service life	Number of operations		100000	100000
Max. operating frequency	S/h	S/h	120	120

	Quantity of switch-disconnectors	Rated operational voltage U_e V	Rated operational current I_e of each switch-disconnector A To DC-PV1	A To DC-PV1	Terminal quantity and type INPUT	OUTPUT	Terminal capacity Flexible with ferrule (in mm²)	Weight kg	Dimensions mm	Part no. Article no.
*1) 	1	1000	30	10	2xMC4 (+) 2xMC4 (-)	1xMC4 (+) 1xMC4 (-)	max.6	0.47		**SOL30-SAFETY/2MC4-U (230V50HZ)** 144122
	1	1000	26	10	2xM12 (+) 2xM12 (+)	1xM12 (+) 1xM12 (-)	1x(max.6), 2x(max.6)	0.47		**SOL30-SAFETY/2MV-U (230V50HZ)** 144123
	1	1000	26	10	2xM12 (+) 2xM12 (-)	1xM12 (+) 1xM12 (-)	1x(max.6), 2x(max.6)	0.47		**SOL30-SAFETY/2MV-U (24VDC)** 172945
*2) 	2	1000	30	10	2xMC4 (+) 2xMC4 (-)	2xMC4 (+) 2xMC4 (-)	max.6	5.1		**SOL30X2-SAFETY-MC4-U (230V50HZ)** 168098
	2	1000	26	10	2xM12 (+) 2xM12 (-)	2xM12 (+) 2xM12 (-)	max.6	5.1		**SOL30X2-SAFETY-MV-U (230V50HZ)** 168099
*2) 	3	1000	30	10	3xMC4 (+) 3xMC4 (-)	3xMC4 (+) 3xMC4 (-)	max.6	5.5		**SOL30X3-SAFETY-MC4-U (230V50HZ)** 168100
	3	1000	26	10	3xM12 (+) 3xM12 (-)	3xM12 (+) 3xM12 (-)	max.6	5.5		**SOL30X3-SAFETY-MV-U (230V50HZ)** 168101
*2) 	4	1000	30	10	4xMC4 (+) 4xMC4 (-)	4xMC4 (+) 4xMC4 (-)	max.6	6.8		**SOL30X4-SAFETY-MC4-U (230V50HZ)** 168102
	4	1000	26	10	4xM12 (+) 4xM12 (-)	4xM12 (+) 4xM12 (-)	max.6	6.8		**SOL30X4-SAFETY-MV-U (230V50HZ)** 168103
*2) 	6	1000	30	10	6xMC4 (+) 6xMC4 (-)	6xMC4 (+) 6xMC4 (-)	max.6	9.5		**SOL30X6-SAFETY-MC4-U (230V50HZ)** 168104
	6	1000	26	10	6xM12 (+) 6xM12 (-)	6xM12 (+) 6xM12 (-)	max.6	9.5		**SOL30X6-SAFETY-MV-U (230V50HZ)** 168105

NAS network and system protection

The compact, plug-and-play network and system protection combinations are suitable for systems from 30 kVA to 130 kVA and come in a plastic housing with IP65 protection. Both series meet the requirements of VDE-AR-N 4105:2018-11.

The devices consist of two contactors connected in series, which are controlled via an NAS protection relay and come pre-wired and mounted in an enclosure. If only one tie breaker is used, the generator system must be switched off via a control line in the event of a fault. No UPS or buffer storage is necessary when using NAS.

The network and system protection combinations must be installed between the inverter and the supply terminal.

- Low contactor withstand rating = low energy consumption
- Undervoltage/overvoltage monitoring
- Underfrequency/overfrequency monitoring
- Power quality monitoring (10-minute mean value)
- Vector-shift monitoring can be added
- Single-fault proof
- Default settings according to VDE-AR-N 4105:2018-11, values can be changed
- Alarm counter, alarm total time
- Sealing option and code protection
- 4-pole contactors (3+N phases)
- PE terminals
- Switch-position indicator

For more information, please see the following brochure:

How to ensure grid stability: system and network protection to VDE-AR-N 4105 and VDE-AR-N 4110

Facts and figures

NAS protection combination (IP 65 degree of protection)					
Type designation		NAS63-CI-1	NAS80-CI-1	NAS125-CI-1-K95	NAS160-CI-1-K95
Article no.		168106	168107	168110	168111
Rated power	kVA	43	55	86	100
Rated operational voltage	V	230/400			
Rated current AC-1	A	63	80	125	160
Pick-up power consumption					
Monitoring relay	VA	5		5	
Contactor	VA	90		360	
Holding power consumption					
Monitoring relay	W	5		5	
Contactor	VA/W	3/3		6.2/4.2	
Internal power consumption	kWh/a	70		98	
Total switch-off time (including NAS protection relay)	ms	< 150			
Permissible ambient temperature range	°C	-20 ... +40			
Duty cycle	% duty cycle	100			
Max. terminal capacity		**Contactors**		**Terminals**	
Flexible with ferrule	mm^2	35 (Cu)		95 (Cu)	
Stranded	mm^2	50 (Cu)		95 (Cu)	
Sector conductor, solid	mm^2	-		70 (Al)	
Sector conductor, stranded	mm^2	-		95 (Cu)	
PE terminals					
Flexible with ferrule	mm^2	50 (Cu)		95 (Cu)	
Stranded	mm^2	50 (Cu)		95 (Cu)	
Sector conductor, solid	mm^2	-		70 (Al)	
Sector conductor, stranded	mm^2	-		95 (Cu)	
NAS protection relay		With integrated UFR1001E (manufactured by ZIEHL)			
Tie breaker					
Type		4-pole contactors			
Type designation		DILMP63 (RAC240)	DILMP80 (RAC240)	DILMP125 (RAC240)	DILMP160 (RAC240)
Article no.		167512	167513	109905	109915
Making capacity	A	560	700	1120	1330
Breaking capacity	A	400	500	800	950
Short-circuit protection	A (gG)	125	160	250	250
Prospective short-circuit current	kA	100	100	100	100
Opening delay	ms	45		40	

Type designation		NAS63-CI-2	NAS80-CI-2	NAS125-CI-2-K95	NAS160-CI-2-K95	NAS190-CI-2-K150
Article no.		198273	198274	198275	198276	198277
Rated power	kVA	43	55	86	100	130
Rated operational voltage	V	230/400				
Rated current AC-1	A	63	80	125	160	190
Pick-up power consumption						
Monitoring relay	VA	5		5		
2 contactors	VA	45		180		
Holding power consumption						
Monitoring relay	W	5		5		
2 contactors	VA/W	1.5/1.5		3.1/2.3		
Internal power consumption	kWh/a	57		64		
Total switch-off time (including NAS protection relay)	ms	< 150				
Permissible ambient temperature range	°C	-20 ... +40				
Duty cycle	% duty cycle	100				
Max. terminal capacity		**Contactors**		**Terminals**		
Flexible with ferrule	mm^2	35 (Cu)		95 (Cu)		150 (Cu)
Stranded	mm^2	50 (Cu)		95 (Cu)		150 (Cu)
Sector conductor, solid	mm^2	-		70 (Al)		120 (Al)
Sector conductor, stranded	mm^2	-		95 (Cu)		150 (Cu)
Tie breaker						
Type		4-pole contactors				
Type designation		DILMP63 (RAC240)	DILMP80 (RAC240)	DILMP125 (RAC240)	DILMP160 (RAC240)	DILMP200 (RAC240)
Article no.		167512	167513	109905	109915	109925
Making capacity	A	560	700	1120	1330	1800
Breaking capacity	A	400	500	800	950	1150
Short-circuit protection	A (gG)	125	160	250	250	250
Prospective short-circuit current	kA	100	100	100	100	100
Opening delay	ms	45		40		41

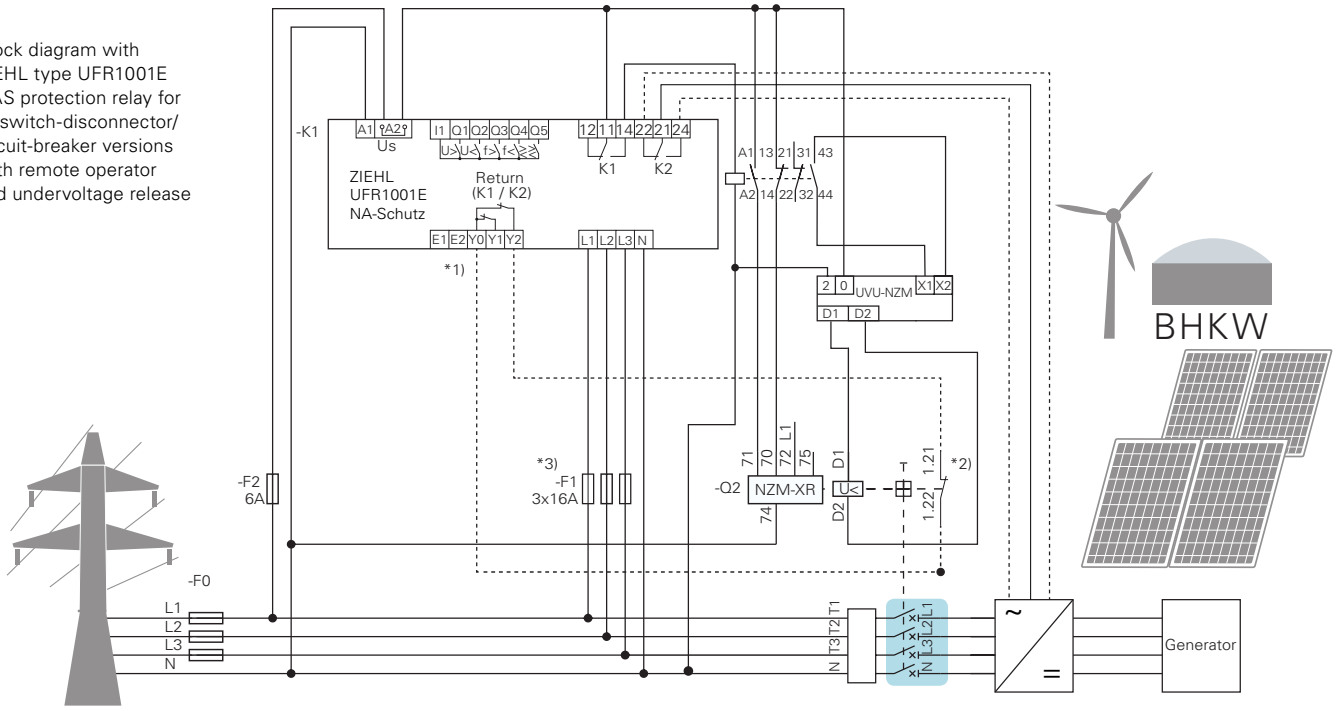
NAS circuit breakers from 14 to 866 kVA

With energy-saving technology

Proven circuit breakers for large systems: 3- and 4-pole tie breakers with remote operator (20 to 1,250 A)

Users can assemble a tie breaker from a circuit breaker or a switch-disconnector with remote operator. In addition, an undervoltage release, an auxiliary contactor and a NAS protection relay are also required. With a short-circuit breaking capacity of 50 kA, this combination can be used to supply mains with up to 2 x 1,000 kVA of transformer power. If switch-disconnectors are used, a fuse is required for upstream short-circuit protection. Thanks to their low-loss remote operators and undervoltage releases with less than 3.6 VA holding power, both switch types are ideal for use in high-efficiency systems. And thanks to their compact, space-saving design, they can be mounted side by side or on top of one another, depending on the application. For easy connection, we offer a wide range of accessories with box and control-circuit terminals.

Block diagram with ZIEHL type UFR1001E NAS protection relay for all switch-disconnector/ circuit-breaker versions with remote operator and undervoltage release

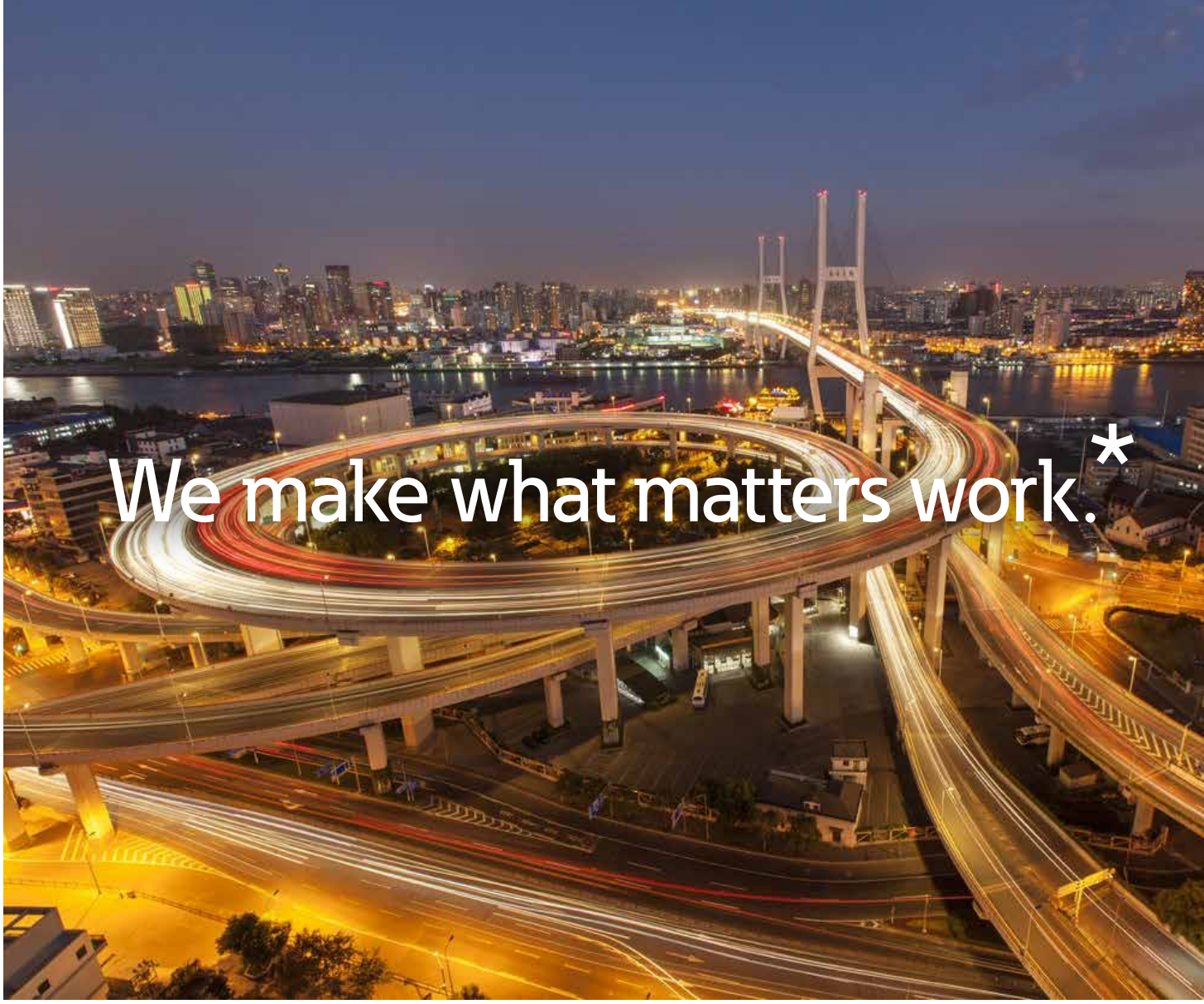


Single-fault proof, also monitors the connected tie breakers (this function can be switched off)
*1) Feedback contacts are not connected: trEL -> set ZIEHL relay UFR1001E to OFF
*2) Alternatively, normally open contacts can also be used; automatic detection via ZIEHL relay UFR1001E
*3) In the case of short-circuit-proof wiring (max. 3 m), circuit breakers can be omitted.

Facts and figures

			4-pole			3-pole			Accessories										
Appa-rent power	**Rated current**		**Circuit breaker or**	**switch-discon-nector**	**Fuse**	**Circuit breaker or**	**switch-discon-nector**	**Fuse**	**Under-voltage release**	**Remote opera-tor**	**Contactor relay**	**Cover**	**Auxiliary con-tacts**			**Box terminal**	**Box ter-minal**	**Control-circuit terminal**	
kVA	A		(Icu= 50 kA)		A gL max.	(Icu= 50 kA)		A gL max.				4- pole	[on/off]		tripped HIA	(top or bottom)	(top or bot-tom)	for screw connec-tion	for box terminal
	L1L2L3	N (%)	4-pole	4-pole		3-pole	3-pole					4-pole	N/O contact	N/C con-tact	N/O contact	4-pole	3-pole		
			Part no. (article no.)	Part no. (article no.)		Part no. (article no.)	Part no. (article no.)		Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)	Part no. (article no.)
14	20	100	NZMH2-4-A20 281287	N2-4-160 266014	250	NZMH2-A20 281281	N2-160 266008	250	UVU-NZM 260154 + NZM2/3-XUV 259527	NZM2-XRD208-240AC 115391	DILA-22 (230V50HZ, 240V60HZ) 276399	NZM2-XAVPR 266677	M22-K10 216376	M22-K10 216376 M22-K01 216378	M22-K01 216378 M22-K10 216376	NZM2-4-160-XKC 266755	NZM2-160-XKC 262240	NZM2-XSTS 260156	NZM-XSTK 266739
17	25	100	NZMH2-4-A25 281289	N2-4-160 266014	250	NZMH2-A25 281282	N2-160 266008	250											
22	32	100	NZMH2-4-A32 281291	N2-4-160 266014	250	NZMH2-A32 281283	N2-160 266008	250											
28	40	100	NZMH2-4-A40 265823	N2-4-160 266014	250	NZMH2-A40 259095	N2-160 266008	250											
35	50	100	NZMH2-4-A50 265825	N2-4-160 266014	250	NZMH2-A50 259096	N2-160 266008	250											
44	63	100	NZMH2-4-A63 265827	N2-4-160 266014	250	NZMH2-A63 259097	N2-160 266008	250											
55	80	100	NZMH2-4-A80 265829	N2-4-160 266014	250	NZMH2-A80 259098	N2-160 266008	250											
69	100	100	NZMH2-4-A100 265831	N2-4-160 266014	250	NZMH2-A100 259099	N2-160 266008	250											
87	125	100	NZMN2-4-A125 265858	N2-4-160 266014	250	NZMN2-A125 259091	N2-160 266008	250											
111	160	100	NZMN2-4-A160 265860	N2-4-160 266014	250	NZMN2-A160 259092	N2-160 266008	250											
		60	NZMN2-4-A160/100 265861																
139	200	100	NZMN2-4-A200 265863	N2-4-200 266015	250	NZMN2-A200 259093	N2-200 266009	250								NZM2-4-250-XKC 266756	NZM2-250-XKC 262244		
		60	NZMN2-4-A200/125 265864													NZM2-4-250-XKC 266756			
222	320	100	NZMN3-4-A320 109694	N3-4-400 266023	630	NZMN3-A320 109669	N3-400 266019	630		NZM3-XR208-240AC 259850		NZM3-XAVPR 266678				NZM3-4-XKC 266783	NZM3-XKC 260042	NZM3/4-XSTS 266797	
		60	NZMN3-4-A320/200 109695																
277	400	100	NZMN3-4-A400 109696	N3-4-400 266023	630	NZMN3-A400 109670	N3-400 266019	630											
		60	NZMN3-4-A400/250 109697																
346	500	100	NZMN3-4-AE630 265894	N3-4-630 266024	630	NZMN3-AE630 259115	N3-630 266020	630											
		60	NZMN3-4-AE630/400 265895																
554	800	100	NZMN4-4-AE800 265909	N4-4-800 266029	1600	NZMN4-AE800 265759	N4-800 266025	1600	UVU-NZM 2606154 + NZM4-XUV 266588	NZM4-XR208-240AC 266685		integra-ted -				NZM4-4-XKA 266837	NZM4-XKA 266836		integra-ted -
		60	NZMN4-4-AE800/500 265910									integra-ted -							integra-ted -
693	1000	100	NZMN4-4-AE1000 265912	N4-4-1000 266030	1600	NZMN4-AE1000 265760	N4-1000 266026	1600				integra-ted -							integra-ted -
		60	NZMN4-4-AE1000/630 265913									integra-ted -							integra-ted -
866	1250	100	NZMN4-4-AE1250 265915	N4-4-1250 266031	1600	NZMN4-AE1250 265761	N4-1250 266027	1600				integra-ted -							integra-ted -
		60	NZMN4-4-AE1250/800 265916									integra-ted							integra-ted -

Notes



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