



C2/119

Coding of Functional Units of installations connected to the high voltage distribution network

version 08.2023

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Important adaptations

Version 11.2022	
§3.5 FU-P	Addition of the diagrams PB314, PB114, PK38 and PK11
§ 3.3 FU-D	Addition of the diagram DwKZ1
	Addition of the diagram DKG11
§3.8 FU-S	Addition of the diagram SKO1
§3.10	Diagram KKN2&MKB2 adapted to KKN2&PK31
Whole document	VDS replaced by VDIS

Minor adaptations

- Chapter 1
 - Title chapter 1 adapted; 'coding' replaced by 'codes'
 - Descriptions first identifier adapted
 - used abbreviations have been added
- Chapter 2:
 - adaptation of the descriptions
 - rearranged some FUs in the table
- Chapter 3:
 - adaptations of the descriptions
 - Paragraph 3.5: PwB31 and PwB32 moved to end of list PBxx

1 IDENTIFICATION CODES

Figures in chapter 3 show and describe the different allowed configurations and indicate the making capacities required to fulfil the safety rules regarding earthing.

Some applications of the accessibility and interlocking rules are also reminded.

Centrelines represent functional couplings or interlocks between switching devices. The type of accessibility and the door interlocks are neither described nor represented on the schematic diagrams. They comply with prescription C2/113-4.

Every other combination, not mentioned in this prescription, but ensuring the required functions, shall be submitted to Synergrid for approval.

For equipment connected exclusively by means of screened insulated separable elbow plug connectors, spherical earthing bolts M12 with diameter 20mm according to DIN 48088-1 are not mandatory on cable connections.

Identification codes of Functional Units (FU) are composed of 3 identifiers with the meanings here below plus one specific number:

- **1st identifier: main function**

- K = feeder with switch-disconnector
- T = protected feeder with switch-fuse combination
- D = protected feeder with circuit-breaker
- M = measuring unit for billing
- P = measuring unit for the (rail) tension or auxiliary power supply
- R = riser
- E = busbar earthing
- S = feeder with disconnector
- C = busbar coupler

Remarks:

- D and P can be followed by a "w" which means that the function is withdrawable.
- C corresponds to one FU ensuring the coupling of 2 main busbars. It always combines 2 FUs type K, S, D or R. Its coding is then specific and always consist in first identifier C followed by both complete codes of composing functions, for example: C (K...)(R...)
- C can be followed by a "t" which means that it is mounted on top of other FUs.

- **2nd identifier:**

For FUs type K, T, D, M, R and S, the second identifier indicates the type of connection of the FU:

- K: connection by cables
- B: connection by busbar
- T: connection to a power transformer (only for FU with 1st identifier T)

Remarks:

- As there are 2 connections in FU M, one incoming and one outgoing, the 2nd identifier indicates the type of connection for the income of the FU.
For FU P, the 2nd identifier indicates the place in the main circuit where the voltage measurement is carried out or where the voltage transformer is connected.
- FU E, the 2nd identifier indicates the place in the main circuit that can be earthed. As it can only be the busbar, it is always going to be B.

- **3rd identifier:**

For FUs K, T, D, R, E and S, the 3rd identifier indicates the type of earthing on the side of the connection:

- N: intended for connection to a network. This identifier means earthing function with full short-circuit making capacity on the side of the connection. IF the first identifier is a D, the circuit-breaker shall at least comply with specific ratings requirements described in annex 1 of technical prescription C2/113-3.
- G: intended for connection of an installation. This identifier may only be associated to a FU with first identifier D. It means with earthing function with full short-circuit making capacity on the side of the connection. In addition, the circuit-breaker shall at least comply with specific ratings requirements described in annex 1 of technical prescription C2/113-3.
- T: intended for connection of a power transformer. This identifier means earthing function with limited short-circuit making capacity on the side of the connection. If the first identifier is a D, the circuit-breaker shall at least comply with specific ratings requirements described in annex 1 of technical prescription C2/113-3.
- Z: this identifier means without earthing function on the side of the connection.
- O: this identifier means that the earthing-switch does not have short-circuit making capacity.

Remarks:

- For FU R, the 3rd identifier is always Z (without earthing function on the side of the connection). If the FU R includes an earthing-switch, it shall be a 2nd function indicated by “& EBNx”.
- As there are 2 connections in FU M, one for income and one for outlet, the 3rd identifier indicates the type of connection for the outlet of the FU.
- For FU E, the 3rd identifier shall always be N as it is a busbar earthing function.
- For FU P, the 3rd identifier indicates the number of voltage transformers.

- **Specific number:**

- For all types of FUs except FU C, those numbers correspond to an execution.
- For FU type C, each constituent function between brackets can be followed by “1” when a VDIS is present on the upper busbar connected to this constituent FU.













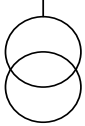
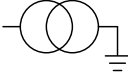


If one FU includes several functions, its identification code shall indicate all of those, following the same logic, beginning by the main function, and separating the different functions by a special character:

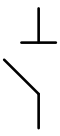
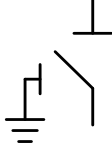
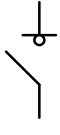
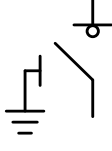

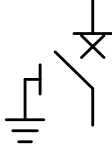

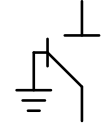

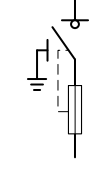
- “&”: if the 2nd function is localized inside the FU
- “-”: if the 2nd function is localized on top of the FU

Examples:

- DKNx – PB3x =
 - main function: cable feeder with circuit-breaker with fast auto-reclosing sequence and with earthing-switch with full short-circuit making capacity
 - second function: cable voltage metering with 3 phase-to-earth voltage transformers localized on top of the FU
- RBZx & PwB3x =
 - main function: busbar riser without earthing-switch
 - second function: busbar voltage metering with a withdrawable truck and 3 phase-to-earth voltage transformers inside the FU

2 LEGEND

	Device or circuit with full peak/short-time current withstand and device with full short-circuit making capacity (except for disconnectors)		Mechanical link
	Device or circuit with limited peak/short-time current withstand and device with limited short-circuit making capacity		Mechanical link between the operation of an earthing-switch and the operation of the earthing-switch of a 3-positions device
	Withdrawable circuit		Bidirectional mechanical interlock between an earthing-switch and a (switch-)disconnector. If one of the devices is in closed position, the other- cannot be closed
	Pluggable circuit		Mechanical interlock. The disconnector can only be operated if the switch or circuit-breaker is in opened position
	Cable connection		Mechanical interlock. The 2-positions disconnector can only be operated if the switch-disconnector is in opened position
	Fuse		Disconnectable conductor
	VDIS (Voltage Detection and Indicating System)		Spherical earthing bolt
	Phase-to-phase voltage transformer (VT)		Phase-to-earth voltage transformer (VT)
	Power transformers		Current transformer (CT)

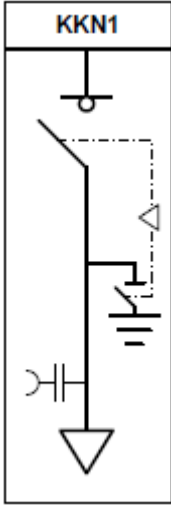
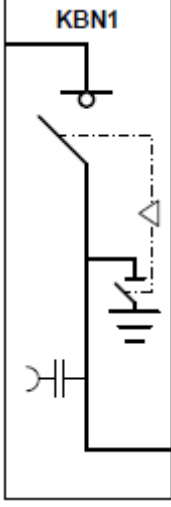
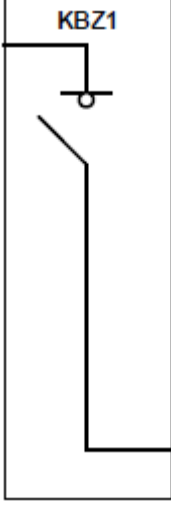
	Disconnecter		3-position disconnecter, with a closed position, an open position and an a earthed position of the underlying circuit
	Switch-disconnector		3-position switch-disconnector, with a closed position, an open position, and an earthed position of the underlying circuit
	Circuit-breaker		3-position circuit-breaker-disconnector, with a closed position, an open position, and an earthing position of the underlying circuit
	Earthing-switch		2-position disconnecter, with a closed position and an earthed position of the underlying circuit
	Switch-fuse combination		3-positions switch-fuse combination, with a closed position, an open position and an earthed position of the underlying circuit,

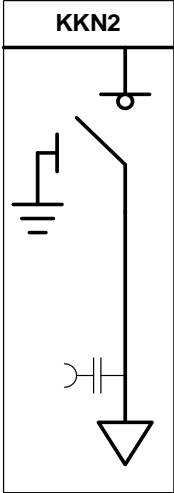
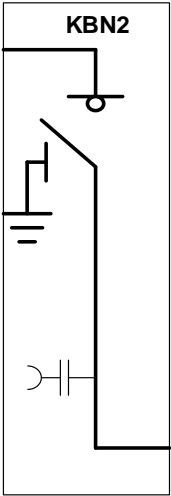
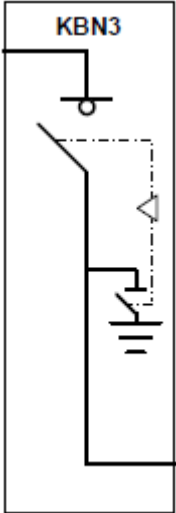
Abbreviations used in this document:

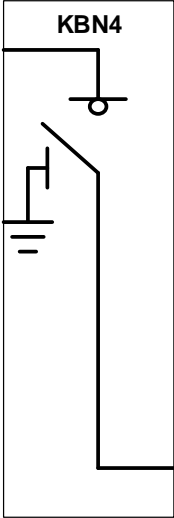
- AIS = Air Insulated switchgear
- GIS = Gas Insulated switchgear

3 SCHEMES

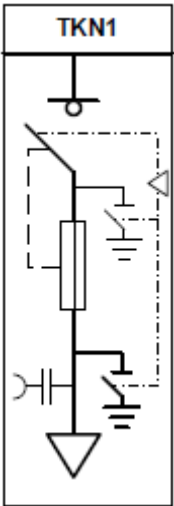
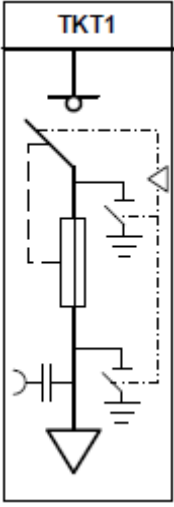
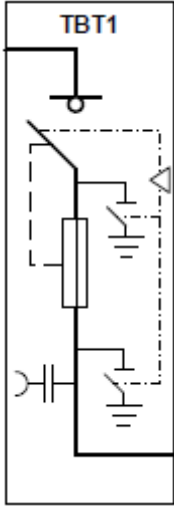
3.1 F.U. type K

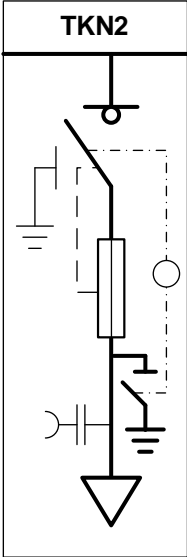
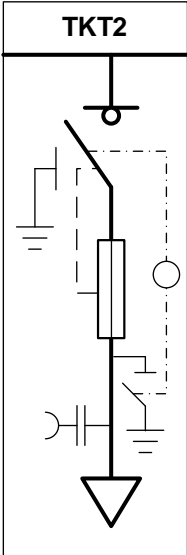
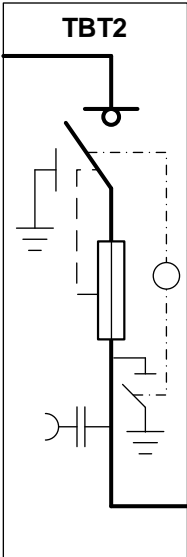
	<p>KKN1 (old code K1N) FU cable feeder with a switch-disconnector, an earthing-switch on the cable side and a VDIS just above the cable connections. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is interlocked with the position of the earthing-switch and reversely.</p>
	<p>KBN1 (old code K1BE) FU busbar feeder with a switch-disconnector, an earthing-switch on the lower busbar side and a VDIS just above the lower busbar connection. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is interlocked with the position of the earthing-switch and reversely.</p>
	<p>KBZ1 FU busbar feeder with only a switch-disconnector.</p>

 <p>The diagram for KKN2 shows a vertical circuit. At the top, there is a 3-position switch-disconnector symbol. Below it is a VDIS symbol (two parallel lines of unequal length). The circuit then goes down to a cable connection symbol (two parallel lines) and finally to an earthing switch symbol (a triangle pointing down).</p>	<p>KKN2 (old code K2N) FU cable feeder with a 3-positions switch-disconnector and a VDIS just above the cable connections. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.</p>
 <p>The diagram for KBN2 shows a vertical circuit. At the top, there is a 3-position switch-disconnector symbol. Below it is a VDIS symbol. The circuit then goes down to a lower busbar connection symbol (two parallel lines) and finally to an earthing switch symbol.</p>	<p>KBN2 (old code K2BE) FU busbar feeder with a 3-positions switch-disconnector and a VDIS just above the lower busbar connection. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.</p>
 <p>The diagram for KBN3 shows a vertical circuit. At the top, there is a switch-disconnector symbol. Below it is a dashed line leading to an earthing switch symbol. The circuit then goes down to a lower busbar connection symbol and finally to an earthing switch symbol.</p>	<p>KBN3 FU busbar feeder with a switch-disconnector and an earthing-switch on the lower busbar side. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is interlocked with the position of the earthing-switch and reversely. This FU is not allowed as standalone FU but only within a coupling FU.</p>

	<p>KBN4</p> <p>KBN4 FU busbar feeder with only a 3-positions switch-disconnector. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is not allowed as standalone FU but only within a coupling FU.</p>
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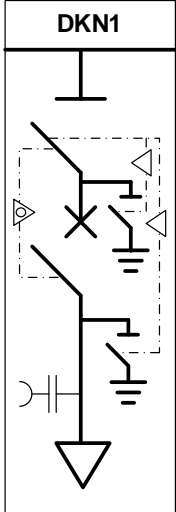
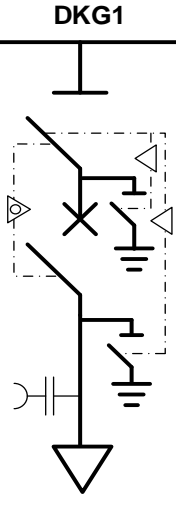
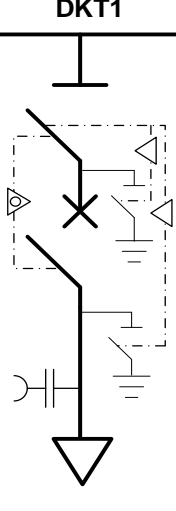
3.2 F.U. type T

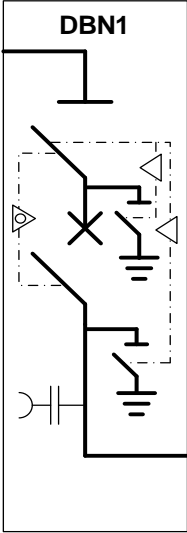
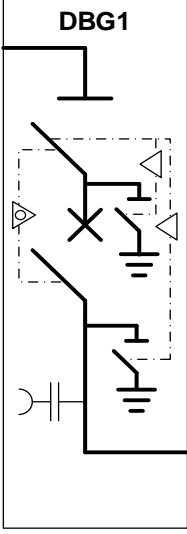
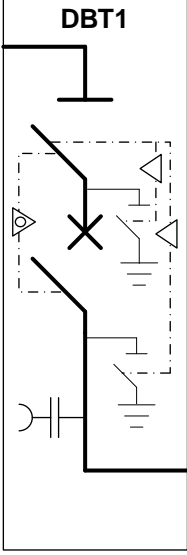
	<p>TKN1 (old code T1N) FU cable feeder with a switch-fuse combination, 2 earthing-switches (one just above and one just below the fuses) and a VDIS just above the cable connections. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the fuses has the full short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity. The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p>
	<p>TKT1 (old code T1T) FU transformer feeder with a switch-fuse combination, 2 earthing-switches (one just above and one just below the fuses) and a VDIS just above the cable connections.. This FU is identical to FU TKN1 except that the earthing-switch below the fuses has a limited short-circuit making capacity and that the min required Pref of the fuses is lower (see C2/113-3).</p>
	<p>TBT1 (old code T1BE) FU transformer feeder with a switch--fuse combination, 2 earthing-switches (one just above and one just below the fuses) and a VDIS just above the lower busbar connection. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the fuses has a limited short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity. The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p>

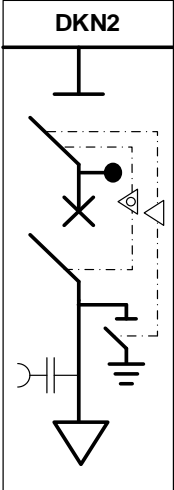
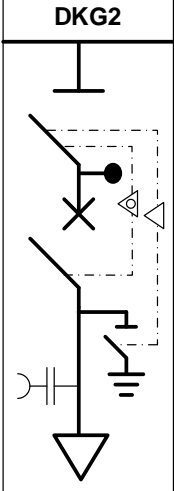
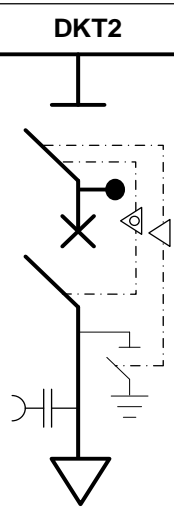
<p style="text-align: center;">TKN2</p> 	<p>TKN2 (old code T5N) FU cable feeder with a 3-positions switch--fuse combination, an earthing-switch just below the fuses and a VDIS just above the cable connections. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the fuses has the full short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity. The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switches and reversely.</p>
<p style="text-align: center;">TKT2</p> 	<p>TKT2 (old code T5T) FU transformer feeder with a 3-positions switch-fuse combination, an earthing-switch just below the fuses and a VDIS just above the cable connections. Both earthing-switches are operated together by one common mechanism. This FU is identical to FU TKN2 except that the earthing-switch below the fuses has a limited short-circuit making capacity and that the min required Pref of the fuses is lower (see C2/113-3).</p>
<p style="text-align: center;">TBT2</p> 	<p>TBT2 (old code T5BE) FU transformer feeder with a 3-positions switch-fuse combination, an earthing-switch just below the fuses, and a VDIS just above the lower busbar connection. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the fuses has a limited short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity. The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switches and reversely.</p>

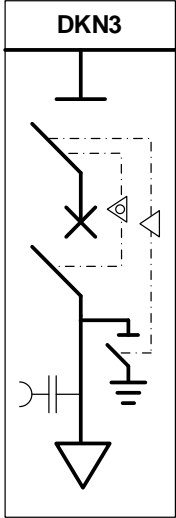
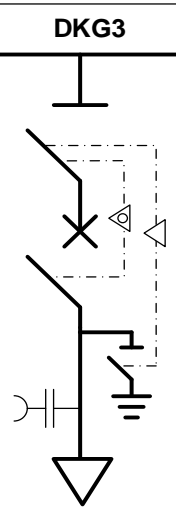
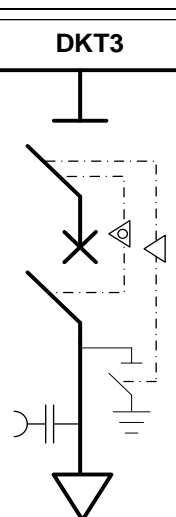
<p style="text-align: center;">TTT1</p>	<p>TTT1</p> <p>FU auxiliary feeder with an 3-phase auxiliary power-transformer, a switch-fuse combination, 2 earthing-switches (one just above and one just below the fuses and a VDIS just above the auxiliary transformer connection.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>The earthing-switch below the fuses has a limited short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p>
<p style="text-align: center;">TTT2</p>	<p>TTT2</p> <p>FU auxiliary feeder with an 3-phase auxiliary power-transformer, a 3-positions switch-fuse combination, an earthing-switch just below the fuses and a VDIS just above the auxiliary transformer connection.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>The earthing-switch below the fuses has a limited short-circuit making capacity. The earthing-switch above the fuses has at least a limited short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switches and reversely.</p>

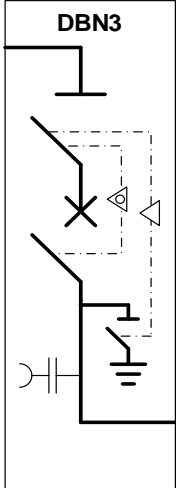
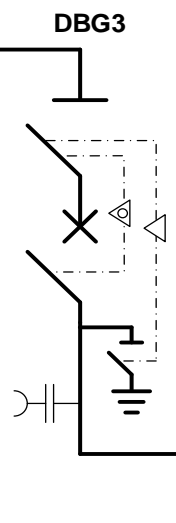
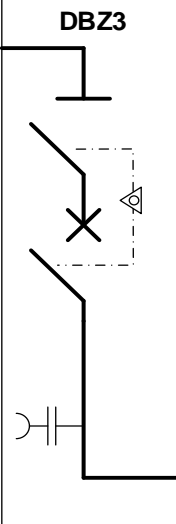
3.3 F.U. type D

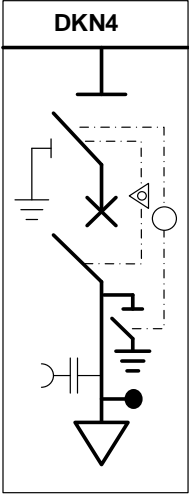
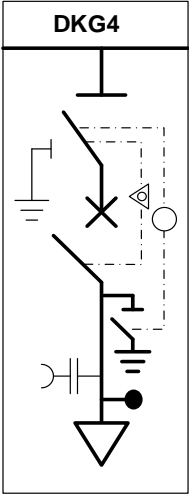
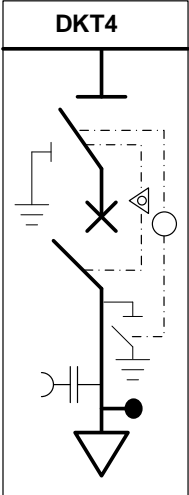
 <p>The diagram for DKN1 shows a vertical busbar at the top. Below it is a circuit-breaker (CB) with two earthing-switches (ES) on either side, one above and one below the CB. A disconnect (D) is located above the CB. A VDIS is positioned just above the cable connections. The main circuit and cable connection are shown at the bottom.</p>	<p>DKN1 (old code D2N) FU cable feeder with a circuit-breaker, a disconnect (or switch-disconnector) above the circuit-breaker on the busbar side , 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the cable connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO Both earthing-switches are operated independently. Both earthing-switches have the full short-circuit making capacity. The closing operation of the disconnect (or switch-disconnector) is interlocked with the position of both earthing-switches and reversely. The operation of the disconnect is interlocked with the position of the circuit-breaker. This FU is only allowed in AIS.</p>
 <p>The diagram for DKG1 is identical in structure to DKN1, showing a vertical busbar, a circuit-breaker with two earthing-switches (one above, one below), a disconnect above the CB, and a VDIS above the cable connections.</p>	<p>DKG1 FU installation feeder with a circuit-breaker, a disconnect (or switch-disconnector) above the circuit-breaker on the busbar side, 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of FU DKN1 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in AIS.</p>
 <p>The diagram for DKT1 is identical in structure to DKN1 and DKG1, showing a vertical busbar, a circuit-breaker with two earthing-switches (one above, one below), a disconnect above the CB, and a VDIS above the cable connections.</p>	<p>DKT1 (old code D2T) FU transformer feeder with a circuit-breaker, a disconnect (or switch-disconnector) above the circuit-breaker on the busbar side, 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of FU DKN1 except that:</p> <ul style="list-style-type: none"> the earthing-switches have a limited short-circuit making capacity the circuit-breaker has a different operating sequence and lower minimum ratings (See C2/113-3) the main circuit and cable connection can be different <p>This FU is only allowed in AIS.</p>

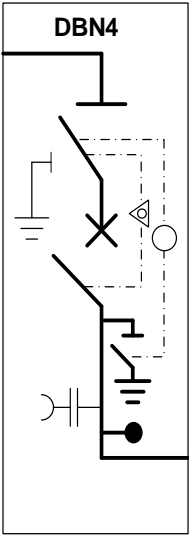
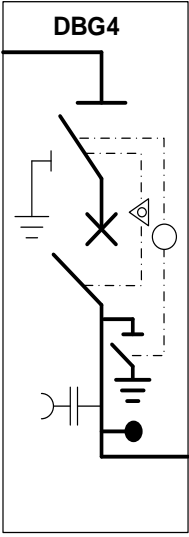
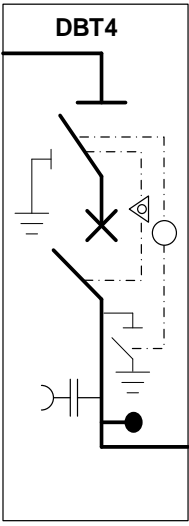
 <p>The diagram for DBN1 shows a vertical busbar feeder. At the top, there is a busbar with a ground connection. Below it is a disconnector (or switch-disconnector). Underneath the disconnector is a circuit-breaker. Below the circuit-breaker are two earthing-switches, one above and one below the circuit-breaker. At the bottom, there is a VDIS (Voltage Dependent Isolator Switch) and a cable connection. The entire assembly is enclosed in a dashed box.</p>	<p>DBN1</p> <p>FU busbar feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the cable connections.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO</p> <p>Both earthing-switches are operated independently.</p> <p>Both earthing-switches have the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of both earthing-switches and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in AIS.</p>
 <p>The diagram for DBG1 is similar to DBN1, showing a vertical busbar feeder with a disconnector, a circuit-breaker, two earthing-switches, and a VDIS. The main difference is the position of the VDIS, which is located just above the lower busbar connection instead of just above the cable connections.</p>	<p>DBG1</p> <p>FU installation feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the lower busbar connection.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of FU DBN1 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3)</p> <p>This FU is only allowed in AIS.</p>
 <p>The diagram for DBT1 is similar to DBN1, showing a vertical busbar feeder with a disconnector, a circuit-breaker, two earthing-switches, and a VDIS. The main difference is the position of the VDIS, which is located just above the lower busbar connection instead of just above the cable connections.</p>	<p>DBT1 (old code D2BE)</p> <p>FU transformer feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, 2 earthing-switches (one just above and one below the circuit-breaker) and a VDIS just above the lower busbar connection.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of FU DBN1 except that:</p> <ul style="list-style-type: none"> the earthing-switches have a limited short-circuit making capacity the circuit-breaker has a different operating sequence and lower minimum ratings (See C2/113-3) the main circuit can be different <p>This FU is only allowed in AIS.</p>

<p style="text-align: center;">DKN2</p> 	<p>DKN2 (old code D3N) FU cable feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side , earthing bolts just above the circuit-breaker, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO The earthing-switch has the full short-circuit making capacity. The closing operation of the disconnecter (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely. The operation of the disconnecter is interlocked with the position of the circuit-breaker. This FU is only allowed in AIS.</p>
<p style="text-align: center;">DKG2</p> 	<p>DKG2 FU installation feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side, earthing bolts just above the circuit-breaker, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of DKN2 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in AIS.</p>
<p style="text-align: center;">DKT2</p> 	<p>DKT2 (old code D3T) FU transformer feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side, earthing bolts just above the circuit-breaker, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of DKN2 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different. <p>This FU is only allowed in AIS.</p>

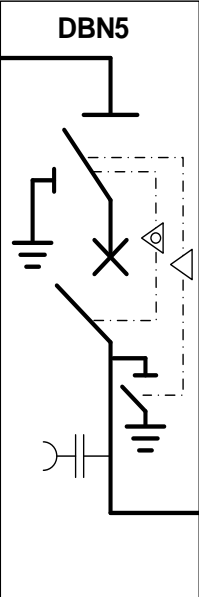
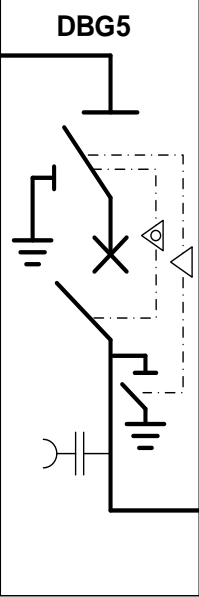
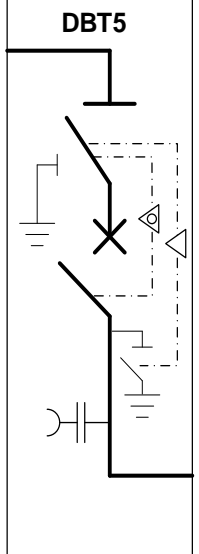
 <p>The diagram shows a vertical busbar at the top. Below it is a circuit-breaker (CB) with a disconnector (or switch-disconnector) above it. An earthing-switch (ES) is located below the CB. A VDIS (Voltage Dependent Isolator) is positioned just above the cable connections. The main circuit and cable connection are shown at the bottom, with a ground symbol.</p>	<p>DKN3 (old code D30N)</p> <p>FU cable feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
 <p>The diagram is identical in structure to DKN3, showing a busbar, disconnector above a circuit-breaker, earthing-switch below, and VDIS above cable connections.</p>	<p>DKG3</p> <p>FU installation feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DKN3 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>
 <p>The diagram is identical in structure to DKN3, showing a busbar, disconnector above a circuit-breaker, earthing-switch below, and VDIS above cable connections.</p>	<p>DKT3</p> <p>FU transformer feeder with a circuit-breaker, a disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DKN3 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different. <p>This FU is only allowed in GIS.</p>

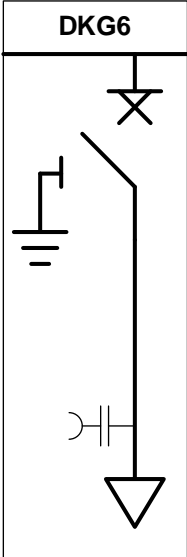
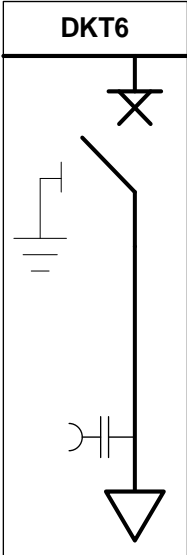
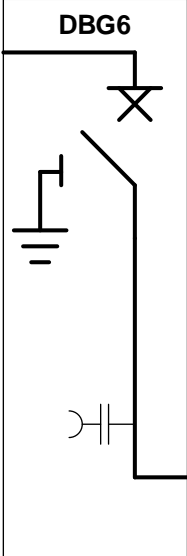
	<p>DBN3</p> <p>FU busbar feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar connection.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnecter (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnecter is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
	<p>DBG3</p> <p>FU installation feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar connection.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of FU DBN3 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>
	<p>DBZ3</p> <p>FU busbar feeder with a circuit-breaker, a disconnecter (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connection.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The operation of the disconnecter is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS downstream a general protection or as one part of a FU C.</p>

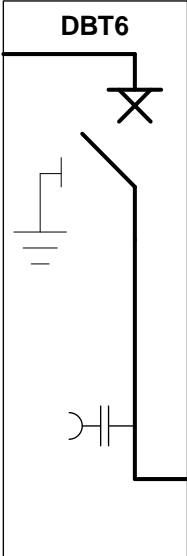
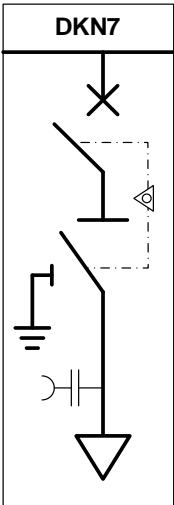
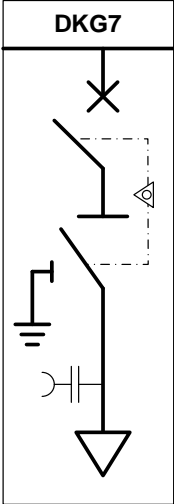
 <p style="text-align: center;">DKN4</p>	<p>DKN4 (old code D4N) FU cable feeder with a circuit-breaker, a 3-positions disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and, a VDIS plus earthing bolts just above the cable connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the circuit-breaker has the full short-circuit making capacity. The earthing-switch above the circuit-breaker need not have a short-circuit-making capacity at the condition that it can be proven that it always closes after the earthing-switch below the circuit-breaker. The closing operation of the disconnecter (or switch-disconnector) is by design interlocked with the position of both earthing-switches and reversely. The operation of the disconnecter is interlocked with the position of the circuit-breaker. This FU is only allowed in AIS.</p>
 <p style="text-align: center;">DKG4</p>	<p>DKG4 FU installation feeder with a circuit-breaker, a 3-positions disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS plus earthing bolts just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of DKN4 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in AIS.</p>
 <p style="text-align: center;">DKT4</p>	<p>DKT4 (old code D4T) FU transformer feeder with a circuit-breaker, a 3-positions disconnecter (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS plus earthing bolts just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of DKN4 except that:</p> <ul style="list-style-type: none"> • the earthing-switches have a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different. <p>This FU is only allowed in AIS.</p>

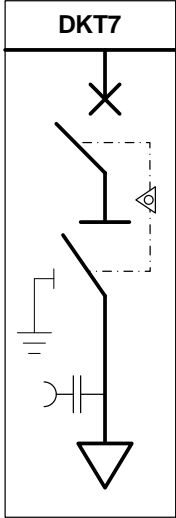
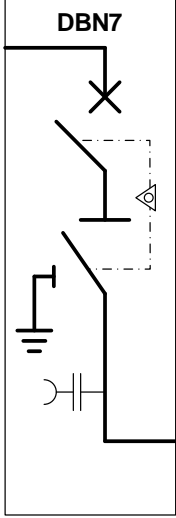
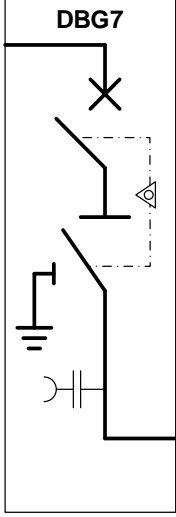
	<p>DBN4</p> <p>FU busbar feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS plus earthing bolts just above the lower busbar connection,. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. Both earthing-switches are operated together by one common mechanism. The earthing-switch below the circuit-breaker on the lower busbar side has the full short-circuit making capacity. The earthing-switch above the circuit-breaker need not have a short-circuit-making capacity at the condition that it can be proven that it closes after than the earthing-switch below the circuit-breaker. The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of both earthing-switches and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed in AIS.</p>
	<p>DBG4</p> <p>FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS plus earthing bolts just above the lower busbar connection. The ratings, functionalities and design of this FU are identical to the ones of FU DBN4 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in AIS.</p>
	<p>DBT4 (old code D4BE)</p> <p>FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS plus earthing bolts just above the lower busbar connection. The ratings, functionalities and design of this FU are identical to the ones of FU DBN4 except that:</p> <ul style="list-style-type: none"> • the earthing-switches have a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (See C2/113-3) • the main circuit can be different <p>This FU is only allowed in AIS.</p>

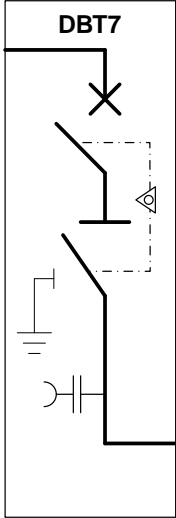
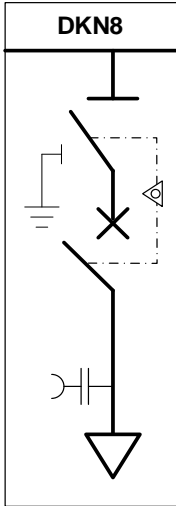
	<p>DKN5 (old code D5N) FU cable feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, a earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. Both earthing-switches are operated independently. Both earthing-switches have the full short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of both earthing-switches (by design for the one above the circuit-breaker) and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed in AIS.</p>
	<p>DKG5 FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of FU DKN5 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in AIS.</p>
	<p>DKT5 (old code D5T) FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side, a earthing-switch below the circuit-breaker and a VDIS just above the cable connections. The ratings, functionalities and design of this FU are identical to the ones of DKN5 except that:</p> <ul style="list-style-type: none"> • the earthing-switches have a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different. <p>This FU is only allowed in AIS.</p>

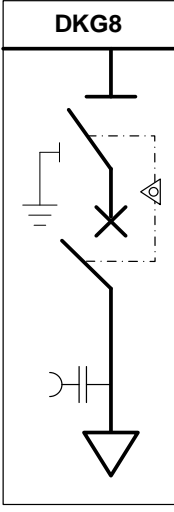
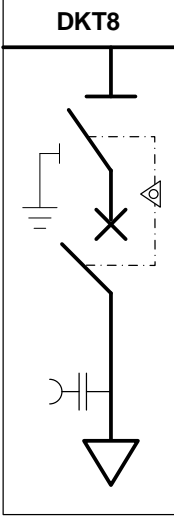
	<p>DBN5</p> <p>FU busbar feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar connection.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>Both earthing-switches are operated independently.</p> <p>Both earthing-switches have the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of both earthing-switches (by design for the one above the circuit-breaker) and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in AIS.</p>
	<p>DBG5</p> <p>FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar connection.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of FU DBN5 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in AIS.</p>
	<p>DBT5 (old code D5BE)</p> <p>FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar side.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DBN5 except that:</p> <ul style="list-style-type: none"> • the earthing-switches have a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit can be different. <p>This FU is only allowed in AIS.</p>

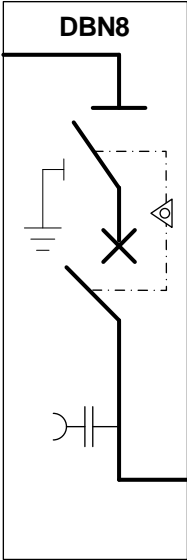
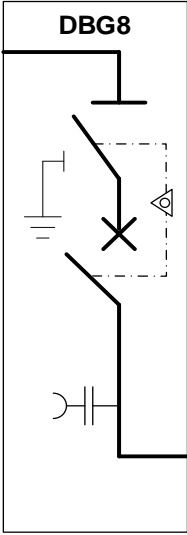
 <p>The diagram shows a vertical busbar at the top labeled 'DKG6'. A circuit-breaker-disconnector symbol is connected to the busbar. Below it is an earthing-switch symbol. The main circuit consists of a vertical line with a switch symbol in the middle, leading to a downward-pointing triangle representing the cable side. A VDIS symbol is located on the cable side.</p>	<p>DKG6 FU installation feeder with a 3-positions circuit-breaker-disconnector and a VDIS on the cable side. The circuit-breaker operates according to the sequence O-3min-CO-3min-CO. The earthing-switch has the full short-circuit making capacity. The closing operation of the circuit-breaker-disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is equipped with a system allowing to carry out a primary current injection without opening the cable compartment to test the complete protection. This FU is only allowed in GIS.</p>
 <p>The diagram shows a vertical busbar at the top labeled 'DKT6'. A circuit-breaker-disconnector symbol is connected to the busbar. Below it is an earthing-switch symbol. The main circuit consists of a vertical line with a switch symbol in the middle, leading to a downward-pointing triangle representing the cable side. A VDIS symbol is located on the cable side.</p>	<p>DKT6 (old code D6T) FU transformer feeder with a 3-positions circuit-breaker-disconnector and a VDIS on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKG6 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • The circuit-breaker has lower minimum ratings (see C2/113-3) • the main circuit and the cable connection can be different (see C2/113-4 § 5.1.2) <p>This FU is only allowed in GIS.</p>
 <p>The diagram shows a vertical busbar at the top labeled 'DBG6'. A circuit-breaker-disconnector symbol is connected to the busbar. Below it is an earthing-switch symbol. The main circuit consists of a vertical line with a switch symbol in the middle, leading to a downward-pointing triangle representing the cable side. A VDIS symbol is located on the cable side.</p>	<p>DBG6 (old code D6BE) FU installation feeder with a 3-positions circuit-breaker-disconnector and a VDIS on the lower busbar side. The circuit-breaker operates according to the sequence O-3min-CO-3min-CO. The earthing-switch has the full short-circuit making capacity. The closing operation of the circuit-breaker-disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is equipped with a system allowing to carry out a primary current injection without opening the lower busbar compartment to test the complete protection. This FU is only allowed in GIS.</p>

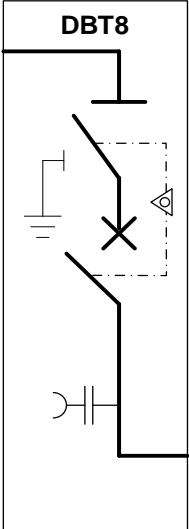
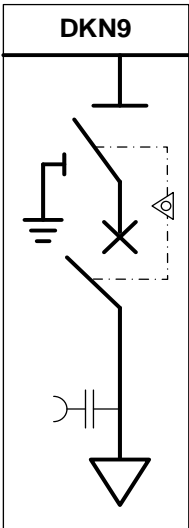
	<p>DBT6</p> <p>FU transformer feeder with a 3-positions circuit-breaker-disconnector and a VDIS on the lower busbar side.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DBG6 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • The circuit-breaker has lower minimum ratings (see C2/113-3) • the main circuit and the lower busbar connection can be different (see C2/113-4 § 5.1.2) <p>This FU is only allowed in GIS.</p>
	<p>DKN7 (old code D7N)</p> <p>FU cable feeder with a circuit-breaker on the busbar side, a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
	<p>DKG7</p> <p>FU installation feeder with a circuit-breaker on the busbar side, a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DKN7 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>

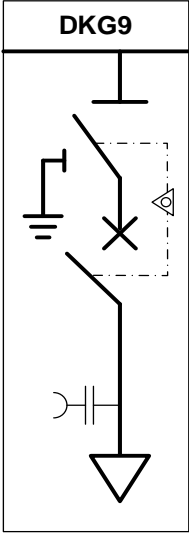
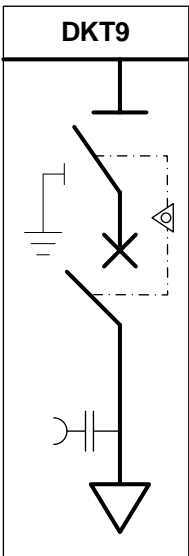
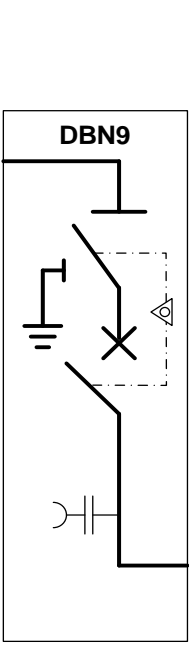
	<p>DKT7 (old code D7T)</p> <p>FU transformer feeder with a circuit-breaker on the busbar side, and a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DKN7 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>
	<p>DBN7 (old code D7BE)</p> <p>FU busbar feeder with a circuit-breaker, on the upper busbar side, a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above the lower busbar connections.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
	<p>DBG7</p> <p>FU installation feeder with a circuit-breaker, on the upper busbar side, a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above lower busbar connection.</p> <p>The ratings, functionalities and design of this FU are identical to the ones of DBN7 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>

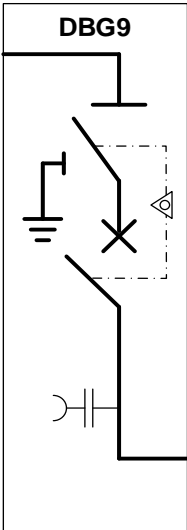
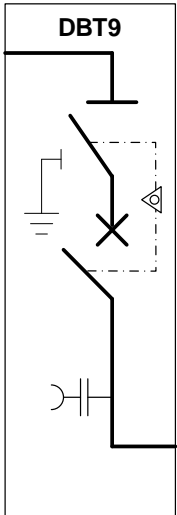
 <p>The diagram shows a vertical busbar at the top labeled 'DBT7'. Below it is a circuit breaker symbol (a vertical line with a diagonal slash and an 'X' above it). Underneath the circuit breaker is a 3-position disconnector symbol (a vertical line with a diagonal slash and a triangle above it). Below the disconnector is a VDIS symbol (a vertical line with a triangle above it). At the bottom, there is an earthing switch symbol (a vertical line with a triangle above it) and a circuit breaker symbol (a vertical line with a diagonal slash and an 'X' above it). A dashed box encloses the disconnector and VDIS symbols.</p>	<p>DBT7</p> <p>FU transformer feeder with a circuit-breaker, on the upper busbar side, a 3-positions disconnector (or switch-disconnector) below the circuit-breaker and a VDIS just above the lower busbar connections. The ratings, functionalities and design of this FU are identical to the ones of DBN7 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and the lower busbar connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>
 <p>The diagram shows a vertical busbar at the top labeled 'DKN8'. Below it is a 3-position disconnector symbol (a vertical line with a diagonal slash and a triangle above it). Underneath the disconnector is a circuit breaker symbol (a vertical line with a diagonal slash and an 'X' above it). Below the circuit breaker is another 3-position disconnector symbol (a vertical line with a diagonal slash and a triangle above it). At the bottom, there is an earthing switch symbol (a vertical line with a triangle above it) and a circuit breaker symbol (a vertical line with a diagonal slash and an 'X' above it). A dashed box encloses the disconnector and circuit breaker symbols.</p>	<p>DKN8 (old code D9N)</p> <p>FU cable feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector)- above the circuit-breaker on the busbar side and a VDIS just above the cable connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. Earthing of the cable side is carried out by closing the earthing-switch and the circuit-breaker. An auxiliary contact of the earthing-switch automatically deactivates the protection and prevents remote controlled opening operation of the circuit-breaker as soon as the earthing-switch is closed (by interrupting the trip coil circuit). The earthing operation of the cable side can operate the earthing-switch and the circuit-breaker together or sequentially. The earthing operation of the cable side has the full short-circuit making capacity, the earthing-switch itself has no short-circuit making capacity; making is carried out by the circuit-breaker. The earthing-switch shall close before the circuit-breaker. In the case of combined operation of the earthing-switch together with the circuit-breaker, the earthing operation shall be interlocked when the circuit-breaker is closed. For sequential operations of the earthing-switch and of the circuit-breaker for earthing, both closing and opening operations of the earthing-switch shall be interlocked when the circuit-breaker is closed. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed in GIS.</p>

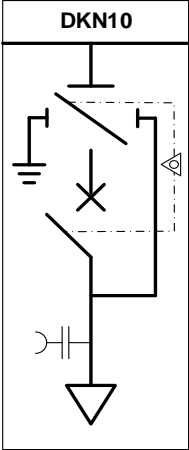
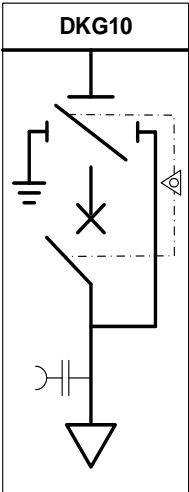
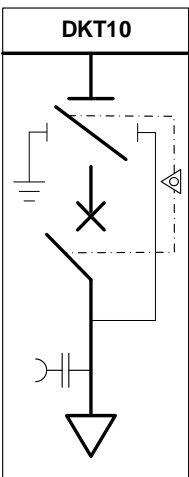
<p style="text-align: center;">DKG8</p> 	<p>DKG8 FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side and a VDIS just above the cable connections. The ratings, features, functionalities, and design of this FU are identical to the ones of DKN8 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in GIS.</p>
<p style="text-align: center;">DKT8</p> 	<p>DKT8 FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side and a VDIS just above the cable connections. The ratings, features, functionalities, and design of this FU are identical to the ones of DKN8 except that:</p> <ul style="list-style-type: none"> • the earthing operation of the cable side has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>

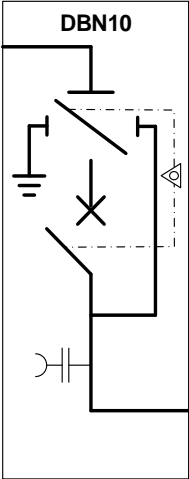
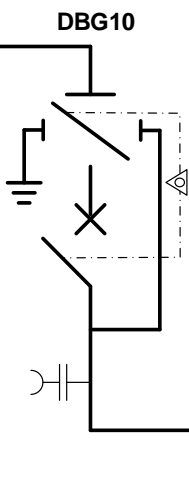
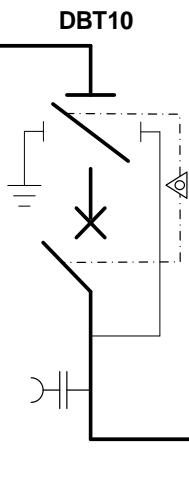
	<p>DBN8</p> <p>FU busbar feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>Earthing of the lower busbar side is carried out by closing the earthing-switch and the circuit-breaker. An auxiliary contact of the earthing-switch automatically deactivates the protection and prevents remote controlled opening operation of the circuit-breaker as soon as the earthing-switch is closed (by interrupting the trip coil circuit).</p> <p>The earthing operation of the lower busbar side can operate the earthing-switch and the circuit-breaker together or sequentially. The earthing operation of the lower busbar side has the full short-circuit making capacity, the earthing-switch itself has no short-circuit making capacity; making is carried out by the circuit-breaker. The earthing-switch shall close before the circuit-breaker.</p> <p>In the case of combined operation of the earthing-switch together with the circuit-breaker, the earthing operation shall be interlocked when the circuit-breaker is closed. For sequential operations of the earthing-switch and of the circuit-breaker, both closing and opening operations of the earthing-switch shall be interlocked when the circuit-breaker is closed.</p> <p>The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
	<p>DBG8</p> <p>FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN8 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>

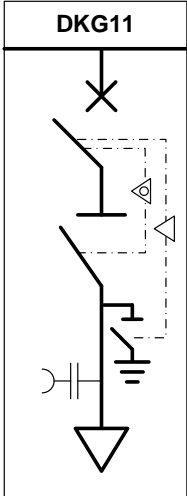
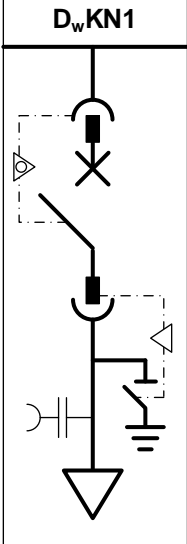
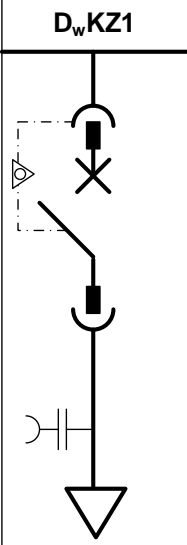
	<p>DBT8</p> <p>FU transformer feeder with a circuit-breaker a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN8 except that:</p> <ul style="list-style-type: none"> • the earthing operation of the lower busbar side has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and lower busbar connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>
	<p>DKN9</p> <p>FU cable feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side and a VDIS just above the cable connections.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>Earthing of the cable side is carried out by closing the circuit-breaker and the earthing-switch. An auxiliary contact of the earthing-switch automatically deactivates the protection and prevents remote controlled opening operation of the circuit-breaker as soon as the earthing-switch is closed (by interrupting the trip coil circuit).</p> <p>The earthing operation of the cable side can operate the circuit-breaker and the earthing-switch together or sequentially.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The earthing-switch shall close after the circuit-breaker.</p> <p>In the case of combined operation of the earthing-switch together with the circuit-breaker, the earthing operation shall be interlocked when the circuit-breaker is closed.</p> <p>In the case of sequential operations of the circuit-breaker and of the earthing-switch, both closing and opening operations of the earthing-switch shall be interlocked when the circuit-breaker is opened.</p> <p>The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>If the CTs are mounted on the bushings, to allow primary current injection, either there shall be no mechanical interlock preventing to operate the circuit breaker when the earthing-switch is closed, or this FU shall be equipped with auxiliary circuits/windings allowing to carry out a primary current injection through the CTs from outside the lower busbar compartment to test the complete protection without needing access and any earthing.</p> <p>This FU is only allowed in GIS.</p>

<p style="text-align: center;">DKG9</p>  <p>The diagram shows a vertical busbar at the top. A circuit-breaker (CB) is connected to the busbar. Above the CB is a 3-position disconnector (or switch-disconnector). Below the CB is a VDIS. The circuit continues through a cable connection to a transformer symbol at the bottom. A dashed box encloses the disconnector and VDIS. A ground symbol is shown on the left side of the busbar.</p>	<p>DKG9 FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the busbar side and a VDIS just above the cable connections. The ratings, features, functionalities, and design of this FU are identical to the ones of DKN9 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3). This FU is only allowed in GIS.</p>
<p style="text-align: center;">DKT9</p>  <p>The diagram is similar to DKG9, but the transformer symbol at the bottom is connected to a different main circuit and cable connection. The rest of the components (busbar, CB, disconnector, VDIS, ground symbol) are the same.</p>	<p>DKT9 FU transformer feeder with a circuit-breaker, a 3-positions disconnector above the circuit-breaker on the busbar side and a VDIS just above the cable connections. The ratings, features, functionalities, and design of this FU are identical to the ones of DKN9 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>
<p style="text-align: center;">DBN9</p>  <p>The diagram shows a busbar at the top. A circuit-breaker (CB) is connected to the busbar. Above the CB is a 3-position disconnector (or switch-disconnector). Below the CB is a VDIS. The circuit continues through a cable connection to a lower busbar at the bottom. A ground symbol is shown on the left side of the upper busbar.</p>	<p>DBN9 FU busbar feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. Earthing of the lower busbar side is carried out by closing the circuit-breaker and the earthing-switch. An auxiliary contact of the earthing-switch automatically deactivates the protection and prevents remote controlled opening operation of the circuit-breaker as soon as the earthing-switch is closed (by interrupting the trip coil circuit). The earthing operation of the lower busbar side can operate the earthing-switch and the circuit-breaker together or sequentially. The earthing-switch has the full short-circuit making capacity. The earthing-switch shall close after the circuit-breaker. In the case of combined operation of the earthing-switch together with the circuit-breaker, the earthing operation shall be interlocked when the circuit-breaker is closed. In the case of sequential operations of the circuit-breaker and of the earthing-switch, both closing and opening operations of the</p>

	<p>earthing-switch shall be interlocked when the circuit-breaker is opened.</p> <p>The closing operation of the disconnecter (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnecter is interlocked with the position of the circuit-breaker.</p> <p>To allow primary current injection, either there shall be no mechanical interlock preventing to operate the circuit breaker when the earthing-switch is closed, or this FU shall be equipped with auxiliary circuits/windings allowing to carry out a primary current injection through the CTs from outside the lower busbar compartment to test the complete protection without needing access and any earthing.</p> <p>This FU is only allowed in GIS.</p>
	<p>DBG9</p> <p>FU installation feeder with a circuit-breaker, a 3-positions disconnecter (or switch-disconnector) above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN9 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>
	<p>DBT9</p> <p>FU transformer feeder with a circuit-breaker, a 3-positions disconnecter above the circuit-breaker on the upper busbar side and a VDIS just above the lower busbar connections.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN9 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and lower busbar connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>

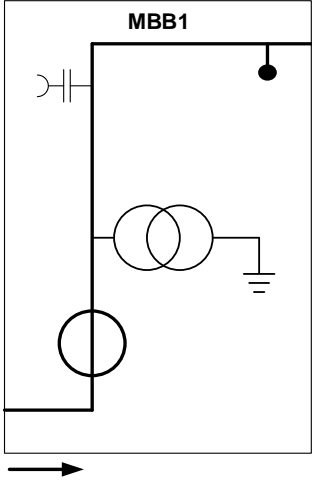
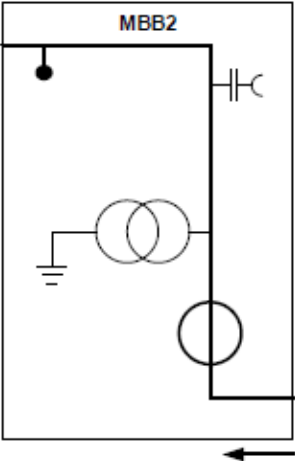
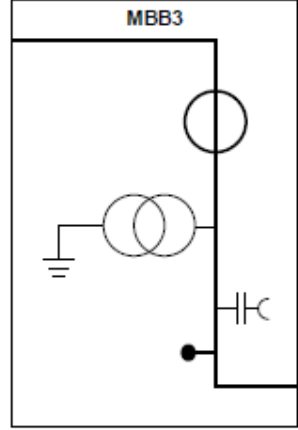
 <p style="text-align: center;">DKN10</p>	<p>DKN10 FU cable feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the cable connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
 <p style="text-align: center;">DKG10</p>	<p>DKG10 FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the cable connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DKN10 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>
 <p style="text-align: center;">DKT10</p>	<p>DKT10 FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the cable connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DKN10 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and cable connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>

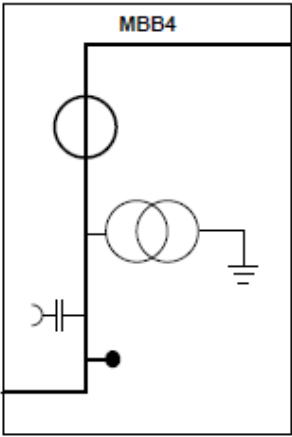
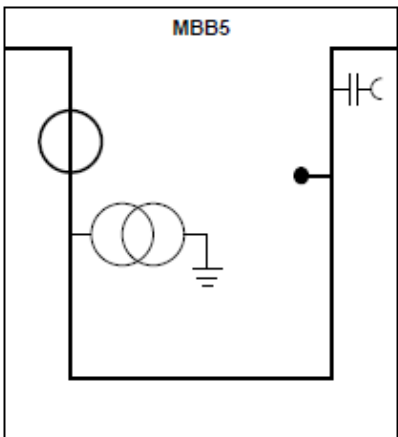
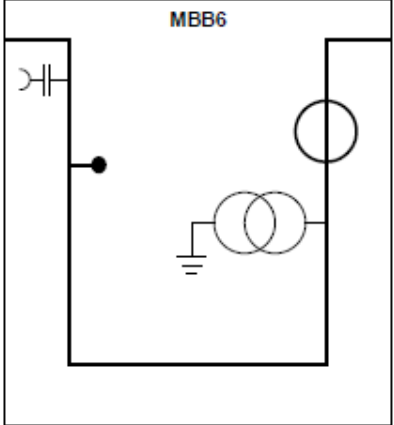
	<p>DBN10</p> <p>FU busbar feeder with a circuit-breaker, one 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the lower busbar connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p> <p>The operation of the disconnector is interlocked with the position of the circuit-breaker.</p> <p>This FU is only allowed in GIS.</p>
	<p>DBG10</p> <p>FU installation feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the lower busbar connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN10 except that the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3).</p> <p>This FU is only allowed in GIS.</p>
	<p>DBT10</p> <p>FU transformer feeder with a circuit-breaker, a 3-positions disconnector (or switch-disconnector) above the circuit breaker on the busbar side and a VDIS just above the lower busbar connections. The earthing-switch of the 3-positions switch earths the circuit below the circuit-breaker.</p> <p>The ratings, features, functionalities, and design of this FU are identical to the ones of DBN10 except that:</p> <ul style="list-style-type: none"> • the earthing-switch has a limited short-circuit making capacity • the circuit-breaker has a different operating sequence and lower minimum ratings (see C2/113-3) • the main circuit and lower busbar connection can be different (see C2/113-4 § 5.1.2 or 5.3.3) <p>This FU is only allowed in GIS.</p>

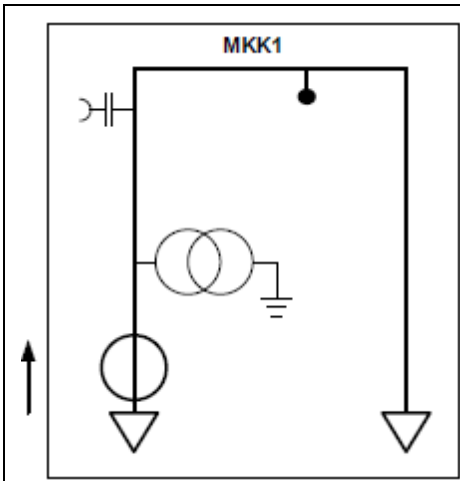
<p style="text-align: center;">DKG11</p> 	<p>DKG11</p> <p>FU cable feeder with a circuit-breaker, a disconnect (or switch-disconnector) just below the circuit-breaker, an earthing-switch below the disconnect and a VDIS just above the cable connections.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The operation of the disconnect (or switch-disconnector) is interlocked with the position of the circuit-breaker.</p> <p>The closing operation of the circuit breaker is interlocked with the position of the earthing-switch and reversely.</p> <p>This FU is only allowed in GIS</p>
<p style="text-align: center;">D_wKN1</p> 	<p>D_wKN1 (old code DW1N1)</p> <p>FU cable feeder with a withdrawable circuit-breaker, an earthing-switch below the circuit-breaker and a VDIS just above the cable connections.</p> <p>The withdrawing operation of the truck isolates the circuit-breaker from the busbar side and from the cable side.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The racking-in operation of the disconnection truck is interlocked with the closed position of the earthing-switch and reversely.</p> <p>The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely.</p> <p>This FU is only allowed in AIS.</p>
<p style="text-align: center;">D_wKZ1</p> 	<p>D_wKZ1</p> <p>FU cable feeder with a withdrawable circuit-breaker and a VDIS just above the cable connections.</p> <p>The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from the busbar side and from the cable side.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The racking-in and -out operation of the circuit-breaker truck is interlocked with the position of the circuit-breaker and reversely.</p> <p>This FU is only allowed in AIS and when connected to an FU with an earthing switch.</p>

	<p>D_wBN1 (old code DW1BE)</p> <p>FU busbar feeder with a withdrawable circuit-breaker, an earthing-switch below the circuit-breaker and a VDIS just above the lower busbar connections.</p> <p>The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from both upper and lower busbar sides.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The earthing-switch has the full short-circuit making capacity.</p> <p>The racking-in operation of the disconnection truck is interlocked with the closed position of the earthing-switch and reversely.</p> <p>The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely.</p> <p>This FU is only allowed in AIS.</p>
	<p>D_wBZ1 (old code DW1BZ)</p> <p>FU busbar feeder with a withdrawable circuit-breaker and a VDIS just above the lower busbar connections.</p> <p>The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from both upper and lower busbar sides.</p> <p>The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO.</p> <p>The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely.</p> <p>This FU is only allowed in AIS and when connected to an FU with an earthing switch.</p>

3.4 F.U. type M

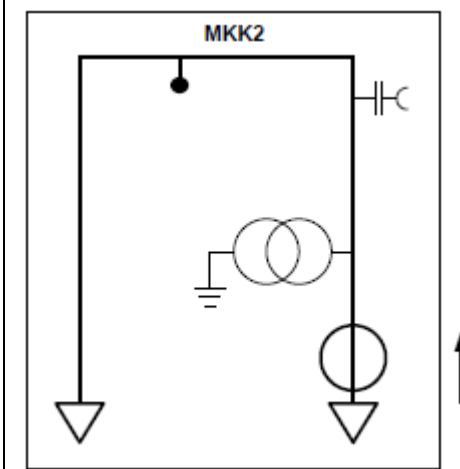
 <p>The diagram for MBB1 shows a rectangular enclosure with a busbar at the top. An input busbar is located at the lower left corner, and an output busbar is at the upper right corner. Inside the enclosure, there are three overlapping circles representing CTs, a circle representing a VDIS, and a ground symbol. An arrow at the bottom left indicates the direction of current flow into the enclosure.</p>	<p>MBB1 (old code M1) FU metering for billing with busbar input at lower left side and busbar output at upper right side.</p> <p>. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.
 <p>The diagram for MBB2 shows a rectangular enclosure with a busbar at the top. An input busbar is located at the lower right corner, and an output busbar is at the upper left corner. Inside the enclosure, there are three overlapping circles representing CTs, a circle representing a VDIS, and a ground symbol. An arrow at the bottom right indicates the direction of current flow into the enclosure.</p>	<p>MBB2 (old code M1) FU metering for billing with busbar input at lower right side and busbar output at upper left side.</p> <p>The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure
 <p>The diagram for MBB3 shows a rectangular enclosure with a busbar at the top. An input busbar is located at the upper left corner, and an output busbar is at the lower right corner. Inside the enclosure, there are three overlapping circles representing CTs, a circle representing a VDIS, and a ground symbol. An arrow at the top left indicates the direction of current flow into the enclosure.</p>	<p>MBB3 (old code M1) FU metering for billing with busbar input at upper left side and busbar output at lower right side.</p> <p>. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure

	<p>MBB4 (old code M1) FU metering for billing with busbar input at upper right side and busbar output at lower left side.</p> <p>The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure
	<p>MBB5 (old code M1) FU metering for billing with busbar input at upper left side and busbar output at upper right side.</p> <p>The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure
	<p>MBB6 (old code M1) FU metering for billing with busbar input at upper right side and busbar output at upper left side.</p> <p>The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure



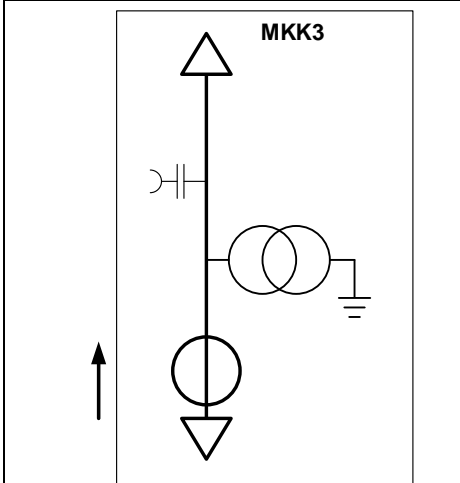
MKK1 (old code M2)
 FU metering for billing with cable input at lower left or front side and cable output at lower right or rear side.
 The FU consist of:

- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side
- in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure



MKK2
 FU metering for billing with cable input at lower right or rear side and cable output at upper left or front side.
 The FU consist of:

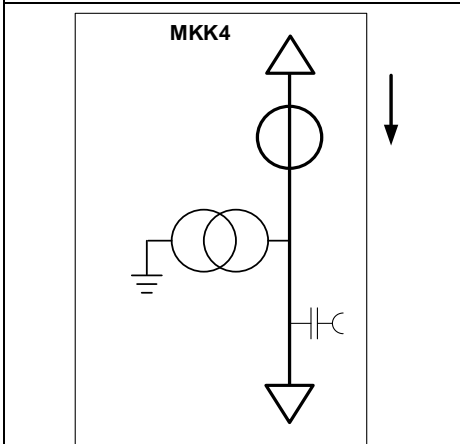
- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side
- in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure



MKK3 (old code M2)
 FU metering for billing with cable input at lower side and cable output at upper side.
 The FU consists of:

- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side

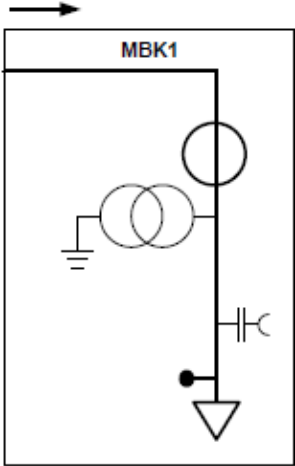
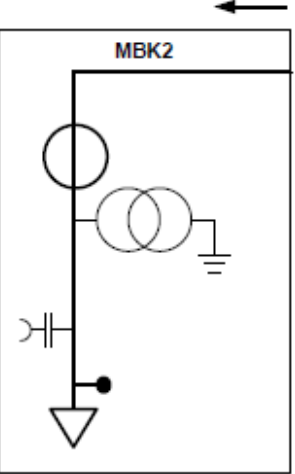
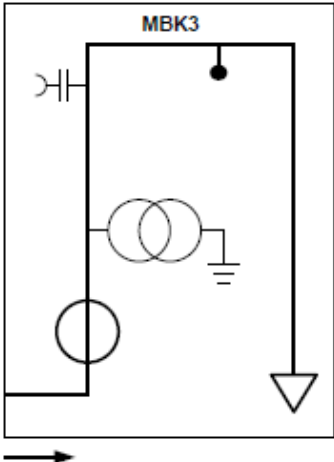
This FU is only allowed in GIS.



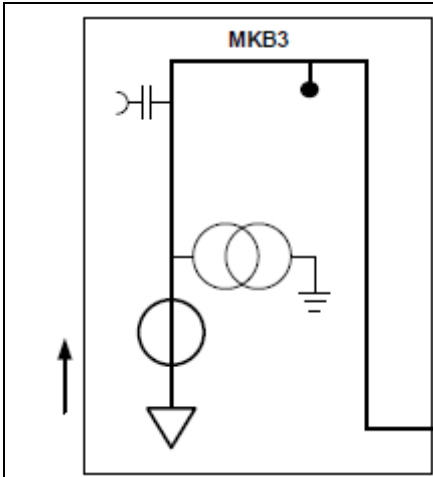
MKK4 (old code M2)
 FU metering for billing with cable input at upper side and cable output at lower side.
 The FU consists of:

- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side

This FU is only allowed in GIS.

 <p>The diagram for MBK1 shows a rectangular enclosure with a busbar at the top. An arrow at the top left indicates busbar input. The circuit includes a metering CT, a phase-to-earth metering VT, a VDIS, and a cable output at the bottom right. A ground symbol is shown on the left side.</p>	<p>MBK1 (old code M3) FU metering for billing with busbar input at upper left side and cable output at lower side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.
 <p>The diagram for MBK2 shows a rectangular enclosure with a busbar at the top. An arrow at the top right indicates busbar input. The circuit includes a metering CT, a phase-to-earth metering VT, a VDIS, and a cable output at the bottom left. A ground symbol is shown on the right side.</p>	<p>MBK2 (old code M3) FU metering for billing with busbar input at upper right side and cable output at lower side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.
 <p>The diagram for MBK3 shows a rectangular enclosure with a busbar at the bottom. An arrow at the bottom left indicates busbar input. The circuit includes a metering CT, a phase-to-earth metering VT, a VDIS, and a cable output at the bottom right. A ground symbol is shown on the right side.</p>	<p>MBK3 (old code M3) FU metering for billing with busbar input at lower left side and cable output at lower right side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.

	<p>MBK4 (old code M3) FU metering for billing with busbar input at lower right side and cable output at lower left side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.
	<p>MKB1 (old code M4) FU metering for billing with cable input at lower side and busbar output at upper left side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.
	<p>MKB2 (old code M4) FU metering for billing with cable input at lower side and busbar output at upper right side. The FU consist of:</p> <ul style="list-style-type: none"> - 3 metering CTs with terminal P1 connected to the input side - 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side) - a VDIS on the output side - in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.

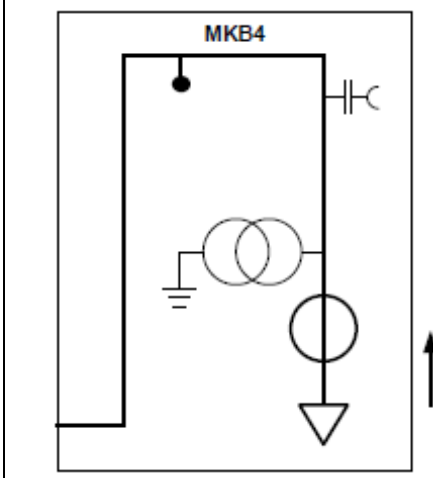


MKB3 (old code M4)

FU metering for billing with cable input at lower left side and busbar output at lower right side.

The FU consist of:

- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side
- in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure.



MKB4 (old code M4)

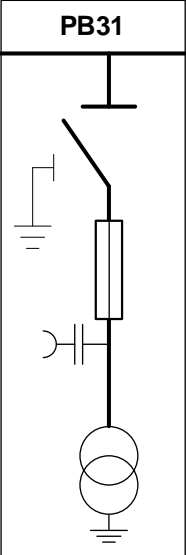
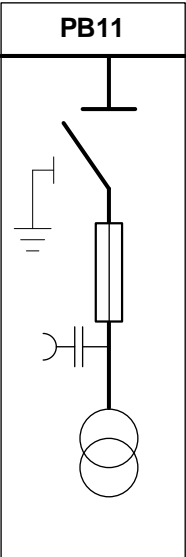
FU metering for billing with cable input at lower right side and busbar output at lower left side.

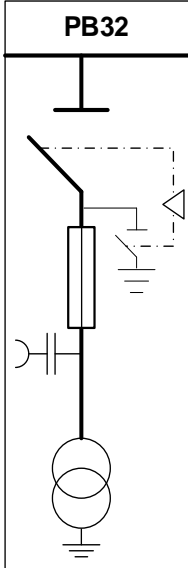
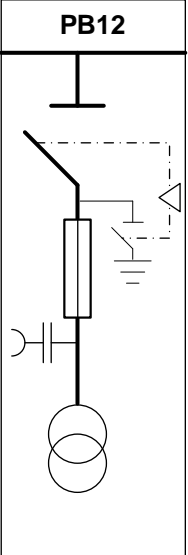
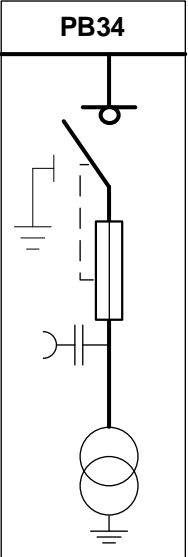
The FU consist of:

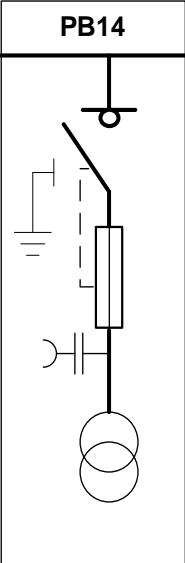
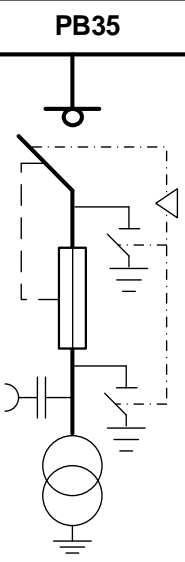
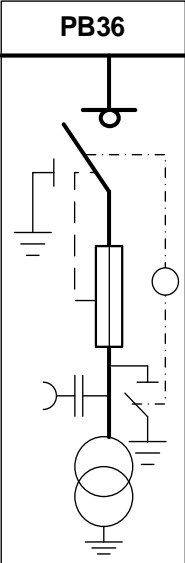
- 3 metering CTs with terminal P1 connected to the input side
- 3 phase-to-earth metering VTs connected downstream the CTs (on the P2 terminal side)
- a VDIS on the output side
- in case of AIS: 3 earthing bolts between the VTs and the output side plus 1 earthing bolt on the enclosure

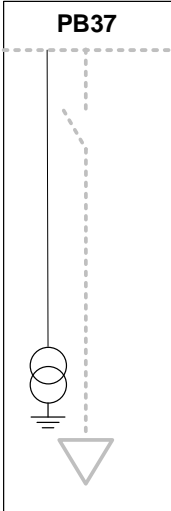
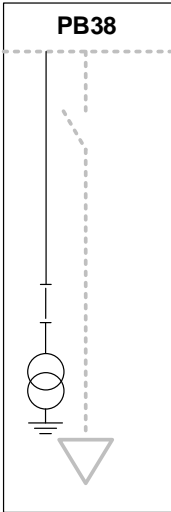
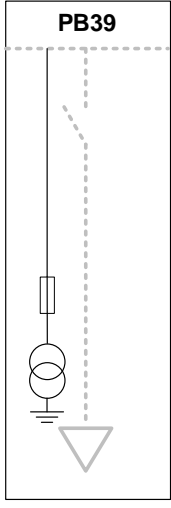
3.5 F.U. type P

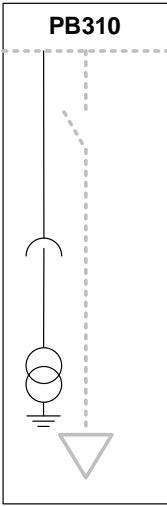
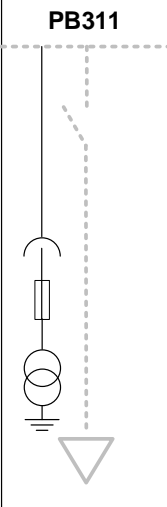
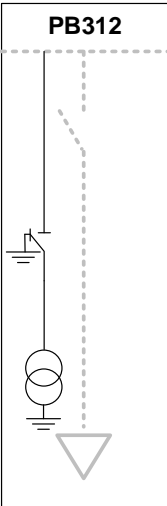
A voltage metering function P can be a standalone Functional Unit or a secondary function integrated in a functional unit with another main function.

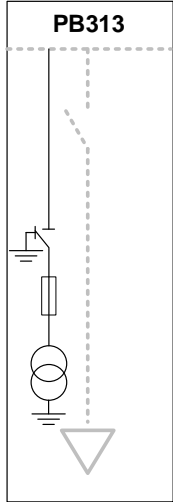
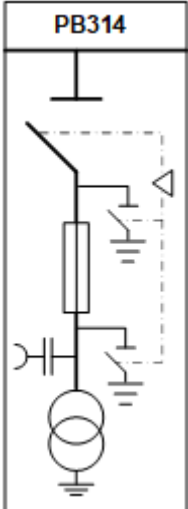
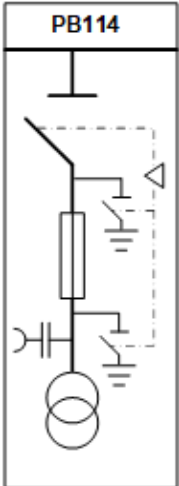
 <p>The diagram for PB31 shows a busbar at the top. A 3-position disconnector is connected to the busbar. Below the disconnector is a VDIS (Voltage Disconnecting Switch). The VDIS is connected to a 3-phase-to-earth metering transformer. The transformer is connected to a 3-phase supply represented by three overlapping circles.</p>	<p>PB31 (old code P13) FU busbar voltage metering with 3 phase-to-earth metering voltage transformers protected by fuses, connected to the busbar through a 3-positions disconnector (or switch-disconnector) and with a VDIS just above the transformer connections. The earthing-switch has no short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.</p>
 <p>The diagram for PB11 shows a busbar at the top. A 3-position disconnector is connected to the busbar. Below the disconnector is a VDIS (Voltage Disconnecting Switch). The VDIS is connected to a 1 phase-to-phase voltage transformer. The transformer is connected to a 3-phase supply represented by three overlapping circles.</p>	<p>PB11 (old code P11) FU auxiliary power supply with 1 phase-to-phase voltage transformer protected by fuses, connected to the busbar through a 3-positions disconnector(or switch- disconnector) and with a VDIS just above the transformer connection. The earthing-switch has no short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed in AIS.</p>

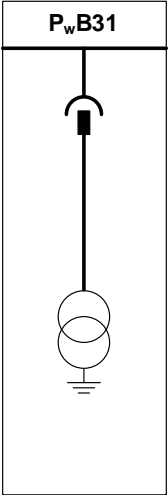
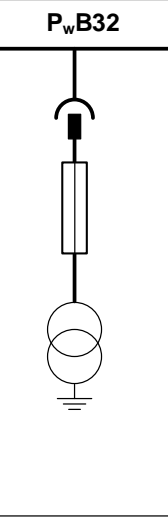
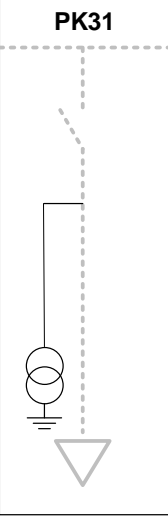
<p style="text-align: center;">PB32</p> 	<p>PB32 (old code P23)</p> <p>FU busbar voltage metering with 3 phase-to-earth metering voltage transformers protected by fuses, connected to the busbar through a disconnecter (or switch-disconnector), with an earthing-switch just above the fuses and a VDIS just above the transformer connections.</p> <p>The earthing-switch has no short-circuit making capacity.</p> <p>The closing operation of the disconnecter (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely.</p> <p>This FU is only allowed in AIS.</p>
<p style="text-align: center;">PB12</p> 	<p>PB12</p> <p>FU auxiliary power supply with one phase-to-phase voltage transformer protected by fuses, connected to the busbar through a disconnecter (or switch-disconnector), with an earthing-switch just above the fuses and a VDIS just above the transformer connection.</p> <p>The earthing-switch has no short-circuit making capacity.</p> <p>The closing operation of the disconnecter (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely.</p> <p>This FU is only allowed in AIS.</p>
<p style="text-align: center;">PB34</p> 	<p>PB34 (old code P43)</p> <p>FU busbar voltage metering with 3 phase-to-earth metering voltage transformers, connected to the busbar through a 3-positions switch-fuse combination and with a VDIS just above the transformer connections.</p> <p>The earthing-switch has no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.</p>

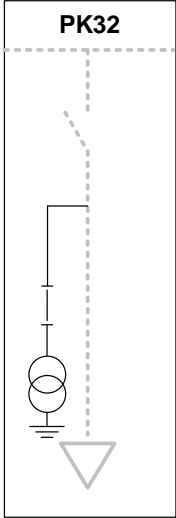
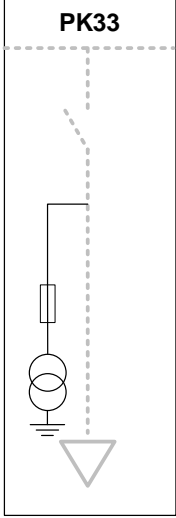
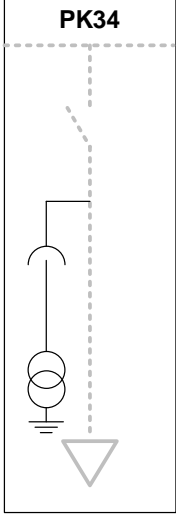
<p style="text-align: center;">PB14</p> 	<p>PB14</p> <p>FU auxiliary power supply with one phase-to-phase voltage transformer, connected to the busbar through a 3-positions switch--fuse combination and with a VDIS just above the transformer connection.</p> <p>The earthing-switch has no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.</p> <p>This FU is only allowed in AIS.</p>
<p style="text-align: center;">PB35</p> 	<p>PB35 (old code P53)</p> <p>FU busbar voltage metering with 3 phase-to-earth metering voltage transformers, connected to the busbar through a switch—fuse combination, with an earthing-switch just above the fuses, an earthing-switch below the fuses and a VDIS just above the transformer connections.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>Both earthing-switches have no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p> <p>This FU is only allowed in AIS.</p>
<p style="text-align: center;">PB36</p> 	<p>PB36</p> <p>FU busbar voltage metering with 3 phase-to-earth metering voltage transformers, connected to the busbar through a 3-positions switch-fuse combination, an earthing-switch below the fuses and a VDIS just above the transformer connections.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>Both earthing-switches have no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switches and reversely.</p>

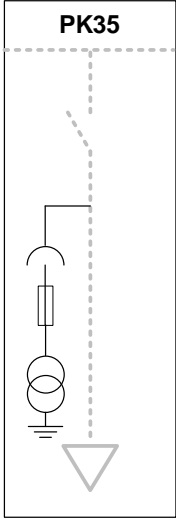
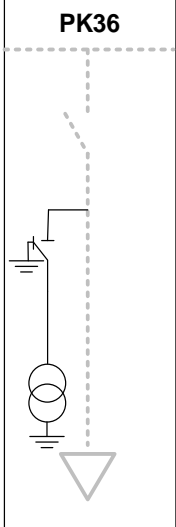
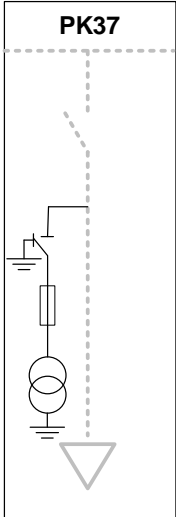
<p style="text-align: center;">PB37</p> 	<p>PB37 Busbar voltage metering function with 3 phase-to-earth metering voltage transformers connected to the busbar by means of bolted connections. This function may only exist as a secondary function in/on a FU with another type of main function. It is only allowed in AIS. It is only allowed downstream a general protection to prevent prolonged busbar outage in case of an issue inside a voltage transformer.</p>
<p style="text-align: center;">PB38</p> 	<p>PB38 Busbar voltage metering function with 3 phase-to-earth metering voltage transformers connected to the busbar by means of removable conductors. This function may only exist as a secondary function in/on a FU with another type of main function. It is only allowed in AIS.</p>
<p style="text-align: center;">PB39</p> 	<p>PB39 Busbar voltage metering function with 3 phase-to-earth metering voltage transformers connected to the busbar by means of fuses. This function may only exist as a secondary function in/on a FU with another type of main function. It is only allowed in AIS.</p>

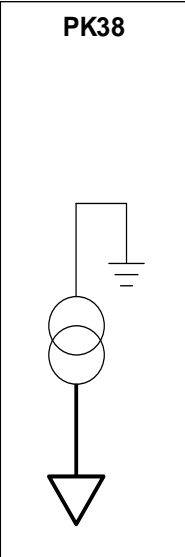
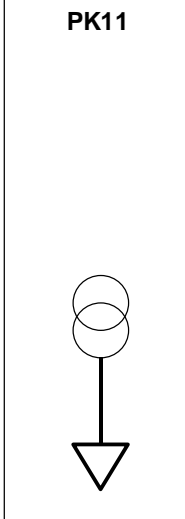
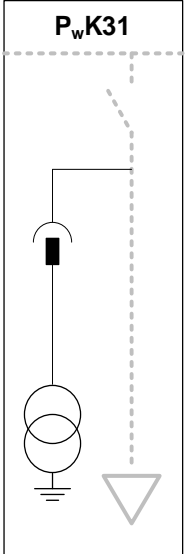
<p style="text-align: center;">PB310</p> 	<p>PB310 Busbar voltage metering Function with 3 phase-to-earth metering voltage transformers plugged into the busbar. The transformers are individually enclosed in an earthed metal enclosure.</p> <p>This function may only exist as a secondary function in/on a FU with another type of main function. If it is placed over another FU, the protection degree IP2X-D shall be ensured, eventually by means of an additional metal enclosure if necessary.</p> <p>It is only allowed in GIS.</p> <p>It is only allowed downstream a general protection to prevent prolonged busbar outage in case of issue inside a voltage transformer.</p>
<p style="text-align: center;">PB311</p> 	<p>PB311 Busbar voltage metering function with 3 phase-to-earth metering voltage transformers protected by fuses and plugged into the busbar.</p> <p>This function may only exist as a secondary function in/on a FU with another type of main function. If it is placed over another FU, the protection degree IP2X-D shall be ensured, eventually by means of an additional metal enclosure if necessary.</p> <p>It is only allowed in GIS.</p>
<p style="text-align: center;">PB312</p> 	<p>PB312 busbar voltage metering function with 3 phase-to-earth metering voltage transformers connected to the busbar by means of a 2-positions disconnector.</p> <p>The transformers are in the cables compartment.</p> <p>The disconnector is situated in the gas tank and can only be operated from inside the cables compartment, i.e., when voltage is switched-off and cable side is earthed.</p> <p>The transformers are individually enclosed in an earthed metal enclosure.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in GIS.</p>

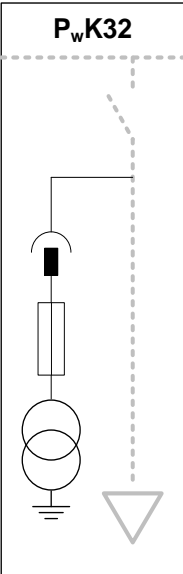
	<p>PB313</p> <p>Function busbar voltage metering with 3 phase-to-earth metering voltage transformers protected by fuses and connected to the busbar by means of a 2-positions disconnector.</p> <p>The transformers are in the cables compartment.</p> <p>The disconnector - is situated in the gas tank and can only be operated from inside the cables compartment, i.e., when voltage is switched-off and cable side is earthed.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in GIS.</p>
	<p>PB314</p> <p>FU voltage metering with 3 phase-to-earth metering voltage transformers protected by fuses, connected to the busbar through a switch-disconnector, with 2 earthing-switches (one just above and one below the fuses) and a VDIS just above the transformer connections.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>Both earthing-switches have no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p> <p>This FU is only allowed in AIS.</p>
	<p>PB114</p> <p>FU auxiliary power supply with one phase-to-phase voltage transformer protected by fuses, connected to the busbar through a switch-disconnector, with 2 earthing-switches (one just above and one below the fuses) and a VDIS just above the transformer connection.</p> <p>Both earthing-switches are operated together by one common mechanism.</p> <p>Both earthing-switches have no short-circuit making capacity.</p> <p>The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely.</p> <p>This FU is only allowed in AIS.</p>

	<p>PwB31</p> <p>PwB31 FU busbar voltage metering with a withdrawable truck connecting 3 phase-to-earth metering voltage transformers to the busbar.</p> <p>This function has a specific compartment for the withdrawable truck and the transformers. The withdrawable truck allows connection/disconnection of the transformers to/from the busbar under voltage.</p> <p>This FU is only allowed in AIS.</p> <p>It can also be a secondary function in/on a FU with another type of main function.</p>
	<p>PwB32</p> <p>PwB32 (old code PW43) FU busbar voltage metering with a withdrawable truck connecting 3 phase-to-earth metering voltage transformers, protected by fuses, to the main busbar.</p> <p>This function has a specific compartment for the withdrawable truck, the fuses, and the transformers. The withdrawable truck allows connection/disconnection of the transformers to/from the main busbar under voltage.</p> <p>This FU is only allowed in AIS.</p> <p>It can also be a secondary function in/on a FU with another type of main function.</p>
	<p>PK31</p> <p>PK31 Cable voltage metering function with 3 phase-to-earth metering voltage transformers connected to the main circuit on the cable side by means of bolted connections.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in AIS.</p> <p>It is not allowed in FUs KKNx or DKNx but only in customer substations downstream the general protection.</p>

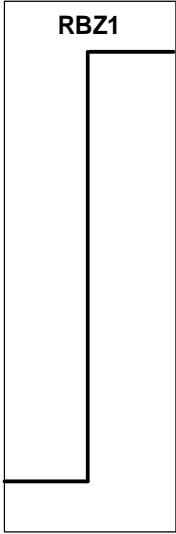
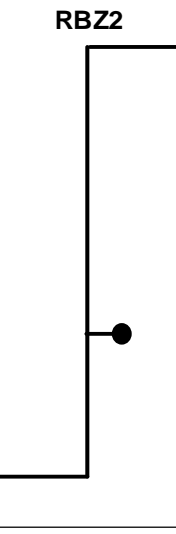
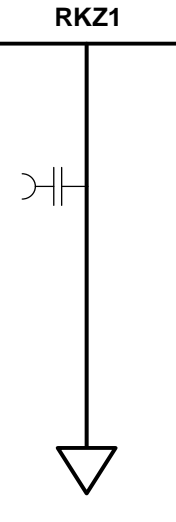
<p style="text-align: center;">PK32</p> 	<p>PK32 Cable voltage metering function with 3 phase-to-earth metering voltage transformers connected to the main circuit on the cable side by means of removable conductors. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed in AIS.</p>
<p style="text-align: center;">PK33</p> 	<p>PK33 Cable voltage metering function with 3 phase-to-earth metering voltage transformers connected to the main circuit on the cable side by means of fuses. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed in AIS.</p>
<p style="text-align: center;">PK34</p> 	<p>PK34 Cable voltage metering function with 3 phase-to-earth metering voltage transformers plugged into the main circuit on the cable side. The transformers are individually enclosed in an earthed metal enclosure. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed in GIS. It is not allowed in FUs KKNx or DKNx but only in customer substations downstream the general protection.</p>

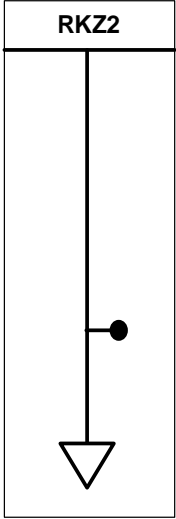
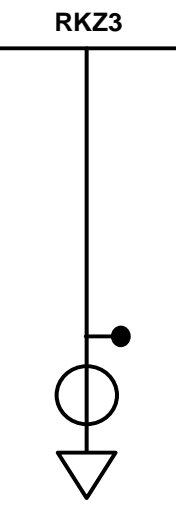
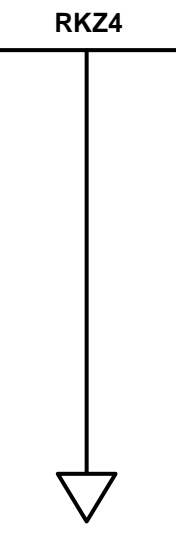
<p style="text-align: center;">PK35</p> 	<p>PK35</p> <p>Cable voltage metering function with 3 phase-to-earth metering voltage transformers protected by fuses and plugged into the main circuit on the cable side.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in GIS.</p> <p>It is not allowed in FUs KKNx or DKNx but only in customer substations downstream the general protection.</p>
<p style="text-align: center;">PK36</p> 	<p>PK36</p> <p>Cable voltage metering function with 3 phase-to-earth metering voltage transformers connected to the main circuit on the cable side by means of a 2-positions disconnector.</p> <p>The disconnector is situated in the gas tank and can only be operated from inside the cables compartment, i.e., when voltage is switched-off and cable side is earthed.</p> <p>The transformers are individually enclosed in an earthed metal enclosure.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in GIS.</p>
<p style="text-align: center;">PK37</p> 	<p>PK37</p> <p>Cable voltage metering function with 3 phase-to-earth metering voltage transformers protected by fuses and connected to the main circuit on the cable side by means of a 2-positions disconnector.</p> <p>The disconnector - is situated in the gas tank and can only be operated from inside the cables compartment, i.e., when voltage is switched-off and cable side is earthed.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in GIS.</p>

<p style="text-align: center;">PK38</p> 	<p>PK38 FU voltage metering with 3 metal-enclosed phase-to-earth voltage transformers each with an outer cone for a screened plug cable connection. This FU is only allowed to be connected downstream a switch-fuse combination.</p>
<p style="text-align: center;">PK11</p> 	<p>PK11 FU voltage transformer with 1 air-insulated phase-to-phase voltage transformer with terminals for air-insulated cable connection. This FU is only allowed to be connected downstream a dedicated switch-fuse combination.</p>
<p style="text-align: center;">P_wK31</p> 	<p>P_wK31 Cable voltage metering function with a withdrawable truck connecting 3 phase-to-earth metering voltage transformers to the main circuit on the cable side. This function has a specific compartment for a withdrawable truck with the transformers. The truck allows their connection/disconnection to/from the main circuit linked to the cable side, under voltage. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed in AIS.</p>

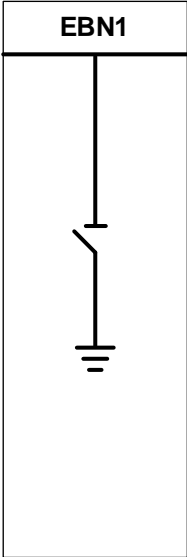
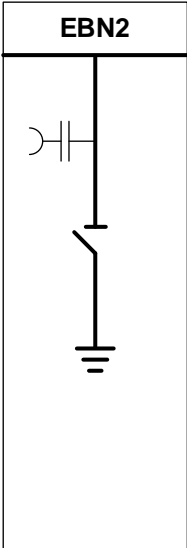
<p style="text-align: center;">P_wK32</p> 	<p>P_wK32</p> <p>Cable voltage metering function with a withdrawable truck connecting 3 phase-to-earth metering voltage transformers protected by fuses to the main circuit on the cable side.</p> <p>This function has a specific compartment for a withdrawable truck, the fuses and the transformers. The truck allows their connection/disconnection to/from the main circuit linked to the cable side, under voltage.</p> <p>This function may only exist as a secondary function in a FU with another type of main function.</p> <p>It is only allowed in AIS.</p>
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3.6 F.U. type R

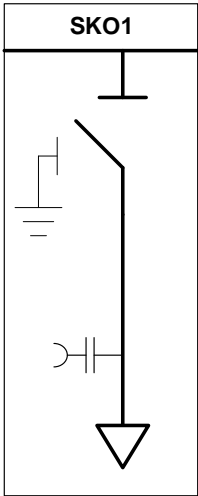
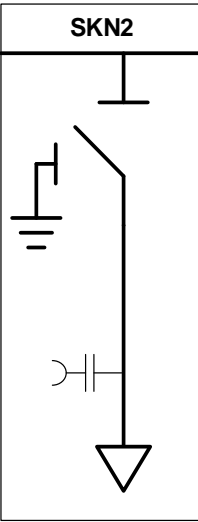
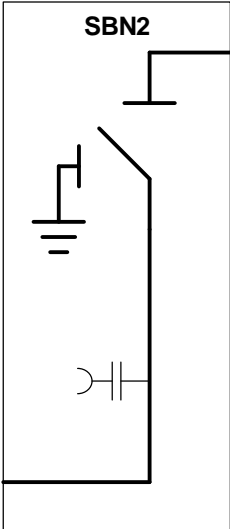
 <p style="text-align: center;">RBZ1</p>	<p>RBZ1 (old code RB12) FU busbar riser.</p> <p>A standalone FU is only allowed:</p> <ul style="list-style-type: none"> • in GIS technology. • in AIS in combination with a function/FU allowing earthing of the accessible circuit. <p>In customer substations, this FU is only allowed downstream the general protection.</p>
 <p style="text-align: center;">RBZ2</p>	<p>RBZ2 (old code RB1) FU busbar riser with earthing bolts on the each phase and on the enclosure.</p> <p>This FU is only allowed in AIS.</p> <p>In customer substations, this FU is only allowed downstream the general protection.</p>
 <p style="text-align: center;">RKZ1</p>	<p>RKZ1 (old code RB22 + VDIS) FU cable riser with a VDIS.</p> <p>A standalone FU is only allowed:</p> <ul style="list-style-type: none"> • in GIS • in AIS only in combination with a function allowing earthing of the accessible. <p>In customer substations, this FU is only allowed downstream the general protection.</p>

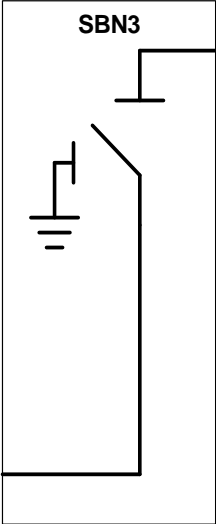
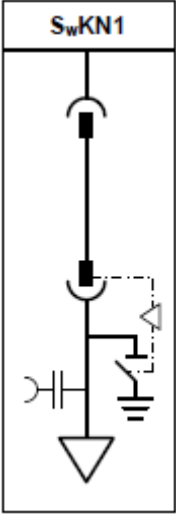
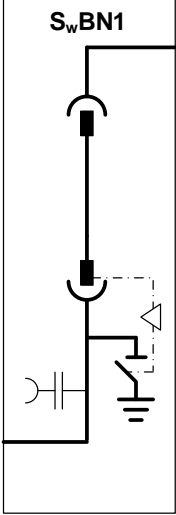
	<p>RKZ2 (old code RB2) FU cable riser with earthing bolts on each phase as well as on the enclosure. This FU is only allowed in AIS. In customer substations, this FU is only allowed downstream the general protection.</p>
	<p>RKZ3 (old code RBM2) FU cable riser with current transformers and with earthing bolts on each phase as well as on the enclosure. This FU is only allowed in AIS. In customer substations, this FU is only allowed downstream the general protection.</p>
	<p>RKZ4 (old code RB22) FU cable riser. A standalone FU alone is allowed:</p> <ul style="list-style-type: none"> • in GIS • in AIS only in combination with a function allowing earthing of the accessible. <p>In customer substations, this FU is only allowed downstream the general protection.</p>

3.7 F.U. type E

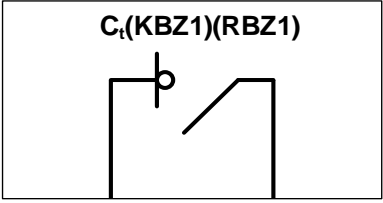
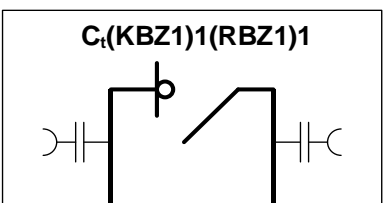
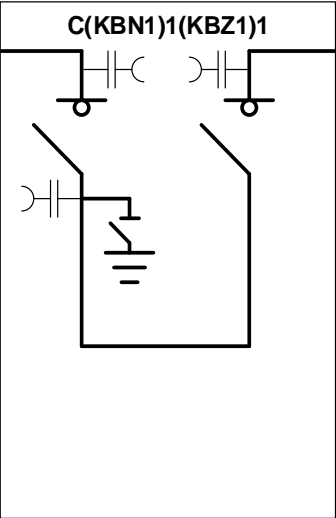
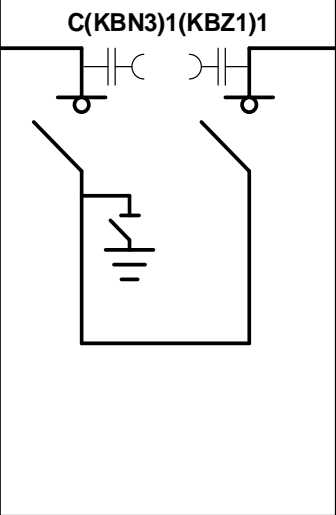
 <p style="text-align: center;">EBN1</p>	<p>EBN1 (old code BB1E) FU busbar earthing- with an earthing switch. The earthing-switch has the full short-circuit-making capacity. The manual closing operation of the earthing-switch is fitted with a blocking magnet. It can also be a secondary function in/on a FU with another type of main function. In customer substations, this FU is only allowed downstream the general protection.</p>
 <p style="text-align: center;">EBN2</p>	<p>EBN2 FU busbar earthing with an earthing-switch and a VDIS on the busbar side. The earthing-switch has the full short-circuit-making capacity. It can also be a secondary function in/on a FU with another type of main function. In customer substations, this FU is only allowed downstream the general protection</p>

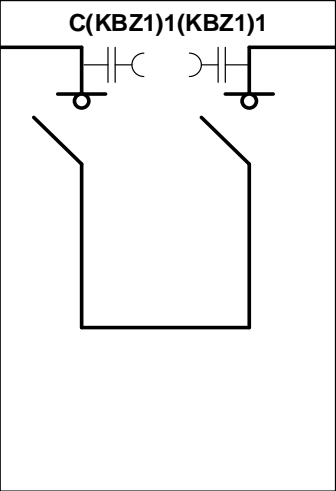
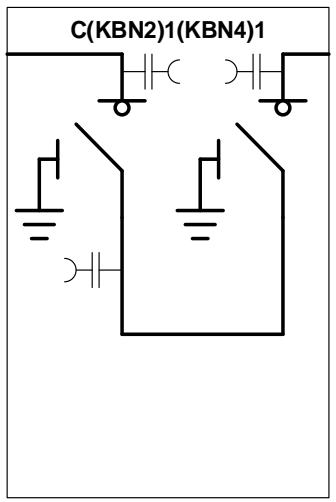
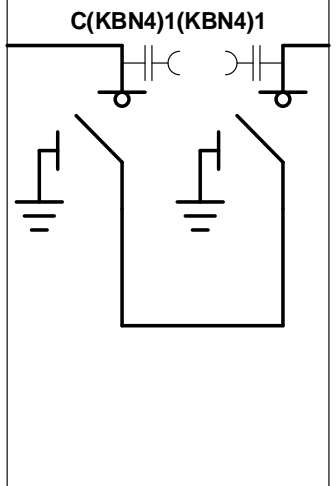
3.8 F.U. type S

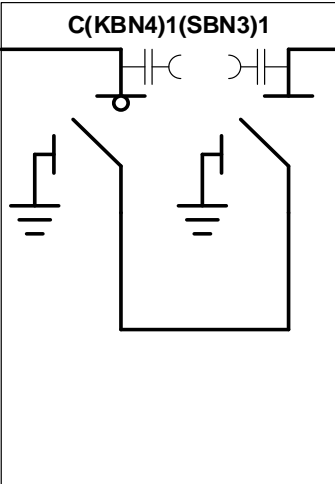
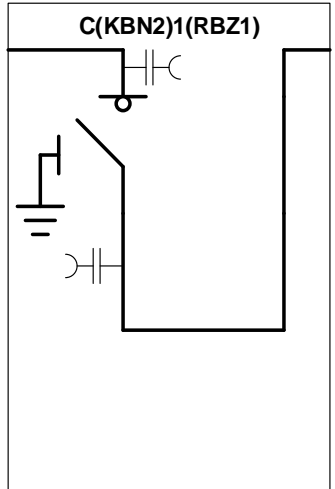
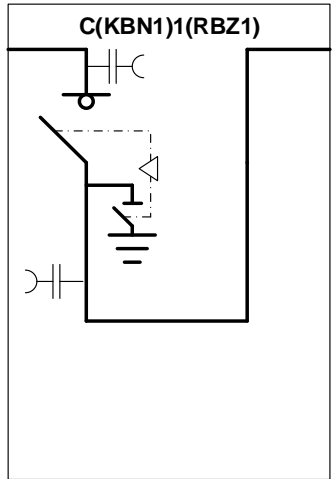
	<p>SKO1 FU cable feeder with a 3-positions disconnector and a VDIS just above the cable connections. The earthing-switch has no making capacity. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed in GIS with $I_r \geq 1250A$. This FU is only allowed in a transversal coupling in combination with a DKN8 (with or without a VDIS).</p>
	<p>SKN2 FU cable feeder with a 3-positions disconnector and a VDIS just above the cable connections. The earthing-switch has the full short-circuit making capacity. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed in GIS technology with $I_r \geq 1250A$. In customer substations, it is only allowed downstream the general protection.</p>
	<p>SBN2 FU busbar feeder with a 3-positions disconnector and a VDIS just above the lower busbar connection. The earthing-switch has the full short-circuit making capacity. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed in GIS with $I_r \geq 1250A$. This FU is only allowed as part of a FU C. In customer substations, it is only allowed downstream the general protection.</p>

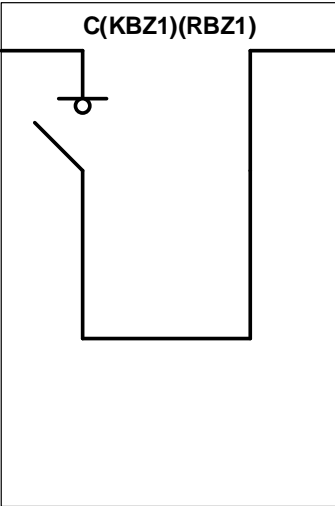
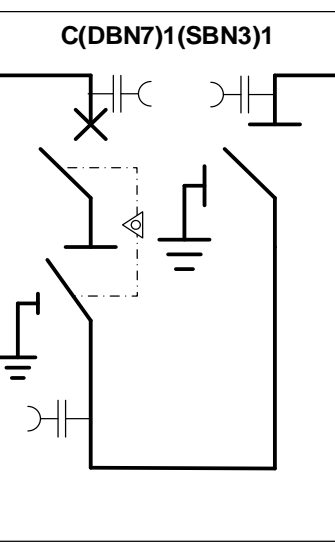
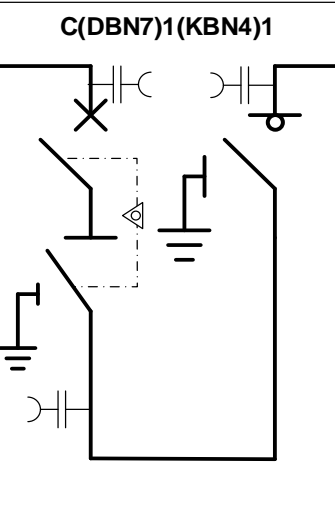
	<p>SBN3</p> <p>FU busbar feeder with a 3-positions disconnector. The earthing-switch has the full short-circuit making capacity. The manual closing operation of the earthing-switch is fitted with a blocking magnet. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed in GIS with $I_r \geq 1250A$. This FU is only allowed as part of a FU C. In customer substations, it is only allowed downstream the general protection.</p>
	<p>SwKN1</p> <p>FU cable feeder with a withdrawable truck ensuring the disconnecting function, an earthing-switch below the truck and a VDIS just above the cable connections. The earthing-switch has the full short-circuit making capacity. The racking-in operation of the truck is interlocked with the position of the earthing-switch and reversely. This FU is only allowed in AIS with $I_r \geq 1250A$. In customer substations, it is only allowed downstream the general protection.</p>
	<p>SwBN1</p> <p>FU busbar feeder with a withdrawable truck ensuring the disconnecting function, a earthing-switch below the truck and a VDIS just above the lower busbar connection. The earthing-switch has the full short-circuit making capacity. The racking-in operation of the disconnector is interlocked with the position of the earthing-switch and reversely. This function is only allowed in AIS with $I_r \geq 1250A$. This function is only allowed as part of a FU C. In customer substations, it is only allowed downstream the general protection.</p>

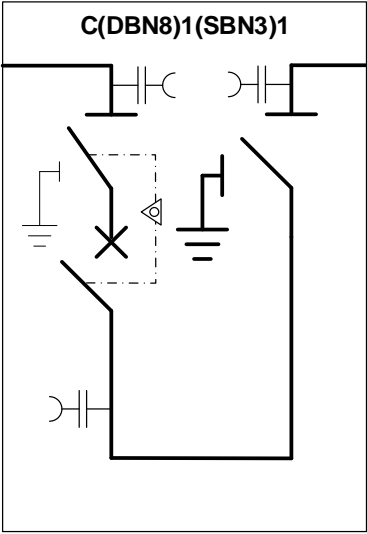
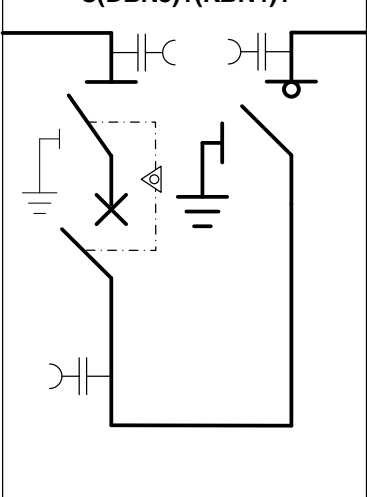
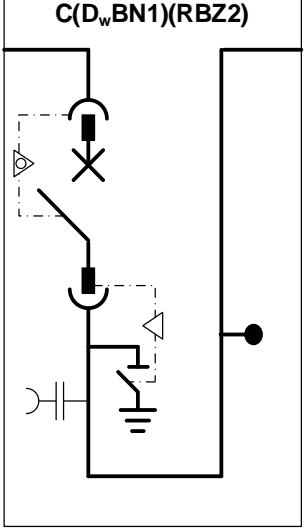
3.9 Coupling FUs

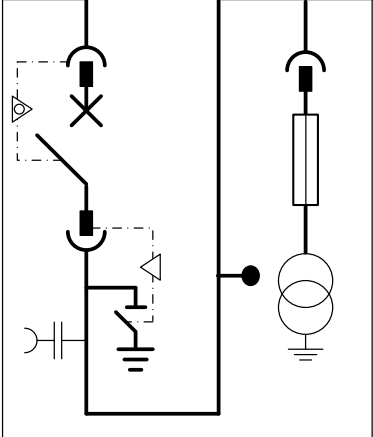
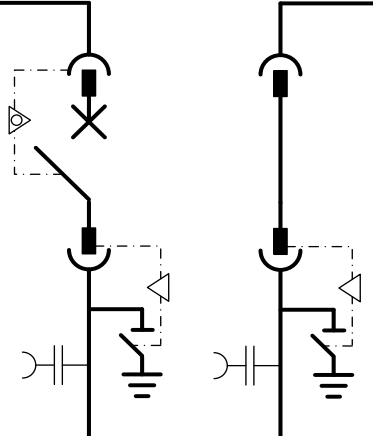
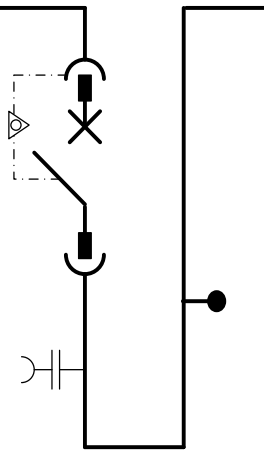
 <p style="text-align: center;">C_i(KBZ1)(RBZ1)</p>	<p>C_i(KBZ1)(RBZ1) (old code K1BZ) FU busbar coupler with a switch-disconnector; to be installed on top of 2 FUs connected to 2 different and partitioned busbar sections. This FU has a partition between both busbar sections it includes. This FU is only allowed in AIS. This FU is not allowed in customer substations.</p>
 <p style="text-align: center;">C_i(KBZ1)1(RBZ1)1</p>	<p>C_i(KBZ1)1(RBZ1)1 (old code K1BZ2) FU busbar coupler with a switch-disconnector and a VDIS on every busbar; to be installed on top of 2 FUs connected to 2 different and partitioned busbar sections. This FU has a partition between both busbar sections it includes. This FU is only allowed in AIS. This FU is not allowed in customer substations.</p>
 <p style="text-align: center;">C(KBN1)1(KBZ1)1</p>	<p>C(KBN1)1(KBZ1)1 (old code K5BE2) FU busbar coupler with double disconnection, one constituent according to KBN1, the other to KBZ1, and with a VDIS on every connected busbar. The earthing-switch on the intermediate busbar is used to earth one or the other connected busbars. There is no interlock between the earthing-switch and the switch-disconnectors, except for the motorized operation of the switch-disconnectors. Interlocks are described in C2/113-4. This FU has partitions between the different busbar sections it includes. This FU is only allowed in AIS with $I_r \geq 800A$. This FU is not allowed in customer substations.</p>
 <p style="text-align: center;">C(KBN3)1(KBZ1)1</p>	<p>C(KBN3)1(KBZ1)1 FU busbar coupler with double disconnection, one constituent according to KBN3, the other to KBZ1, and with a VDIS on every connected busbar. This FU is identical to the FU C(KBN1)1(KBZ1)1, except that there is no VDIS on the intermediate busbar. This FU is only allowed in AIS with $I_r \geq 800A$. This FU is not allowed in customer substations.</p>

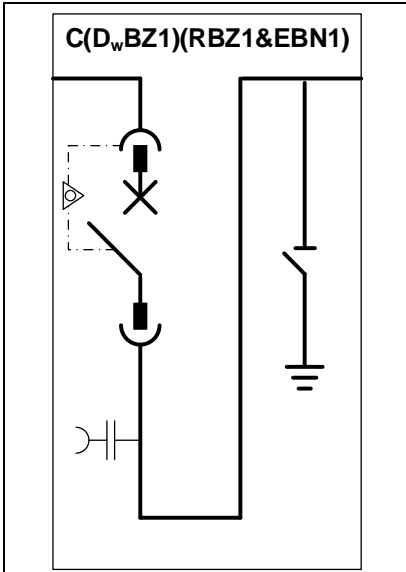
	<p>C(KBZ1)1(KBZ1)1</p> <p>FU busbar coupler with double disconnection, both constituents according to KBZ1, and a VDIS on every connected busbar. This FU is identical to the FU C(KBN1)1(KBZ1)1, except that there is neither earthing-switch nor VDIS on the intermediate busbar.</p> <p>In customer substations this FU is only allowed downstream the general protection.</p>
	<p>C(KBN2)1(KBN4)1 (old code K6BE2)</p> <p>FU busbar coupler with double disconnection, one constituent according to KBN2, the other to KBN4, and with a VDIS on every connected busbar.</p> <p>The earthing-switches are used to earth the opposite connected busbar.</p> <p>There are no crossed interlocks between the earthing-switches and their opposite switch-disconnector, except for the motorized operation of the switch-disconnectors,.</p> <p>Interlocks are described in C2/113-4.</p> <p>This FU has partitions between the different busbar sections it includes.</p> <p>This FU is only allowed in AIS with $I_r \geq 800A$ or in GIS with $I_r \geq 1250A$.</p> <p>This FU is not allowed in customer substations.</p>
	<p>C(KBN4)1(KBN4)1</p> <p>FU busbar coupler with double disconnection, both constituent according to KBN4, and a VDIS on every connected busbar.</p> <p>This FU is identical to C(KBN2)1(KBN4)1, except that there is no VDIS on the intermediate busbar.</p> <p>This FU is only allowed in AIS with $I_r \geq 800A$ or in GIS with $I_r \geq 1250A$.</p> <p>This FU is not allowed in customer substations.</p>

 <p style="text-align: center;">C(KBN4)1(SBN3)1</p>	<p>C(KBN4)1(SBN3)1 FU busbar coupler with double disconnection, one constituent according to KBN4, the other to SBN3, and a VDIS on every connected busbar. This FU is identical to C(KBN2)1(KBN4)1, except that there is no VDIS on the intermediate busbar and that one switch-disconnector is replaced by a disconnector. This FU is only allowed in GIS with $I_r \geq 1250A$. This FU is not allowed in customer substations.</p>
 <p style="text-align: center;">C(KBN2)1(RBZ1)</p>	<p>C(KBN2)1(RBZ1) (old code K7BE2) FU busbar coupler with single disconnection, one constituent according to KBN2, the other to RBZ1, and a VDIS on the busbar connected to KBN2. The earthing-switch in KBN2 is used to earth the busbar connected to RBZ1. This FU has partitions between the different busbar sections it includes. In customer substations, this FU is only allowed downstream the general protection.</p>
 <p style="text-align: center;">C(KBN1)1(RBZ1)</p>	<p>C(KBN1)1(RBZ1) (old code K8BE2) FU busbar coupler with single disconnection, one constituent according to KBN1, the other to RBZ1, and a VDIS on the busbar connected to the constituent KBN1. The earthing-switch in KBN1 is used to earth the busbar connected to RBZ1. This FU has partitions between the different busbar sections it includes. This FU is only allowed in AIS. In customer substations, this FU is only allowed downstream the general protection.</p>

 <p style="text-align: center;">C(KBZ1)(RBZ1)</p>	<p>C(KBZ1)(RBZ1) (old code K8BZ0) FU busbar coupler with single disconnection, one constituent according to KBZ1, the other constituent according to RBZ1. This FU is only allowed in GIS.</p>
 <p style="text-align: center;">C(DBN7)1(SBN3)1</p>	<p>C(DBN7)1(SBN3)1 FU busbar coupler with double disconnection, one constituent according to DBN7, the other to SBN3, and a VDIS on every connected busbar. This FU is available with or without VDIS on the intermediate busbar. Without VDIS there is only one gas vessel, with VDIS there are 2 gas vessels, linked by an isolated screened intermediate busbar plugged on external bushings. The earthing-switches are used to earth the opposite busbar. There are no crossed interlocks between the earthing-switches and their opposite disconnector . This FU has partitions between the different busbar sections it includes. This FU is only allowed in GIS with $I_r \geq 1250A$. In customer substations, this FU is only allowed downstream the general protection.</p>
 <p style="text-align: center;">C(DBN7)1(KBN4)1</p>	<p>C(DBN7)1(KBN4)1 FU busbar coupler with double disconnection, one constituent according to DBN7, the other to KBN4, and a VDIS on every connected busbar. This FU is identical to FU C(DBN7)1(SBN3)1 except that the disconnector in the second FU is replaced by a switch-disconnector. This FU is only allowed in GIS with $I_r \geq 1250A$. In customer substations, this FU is only allowed downstream the general protection</p>

	<p>C(DBN8)1(SBN3)1</p> <p>FU busbar coupler with double disconnection, one constituent according to DBN8, the other to SBN3, and a VDIS on every connected busbar.</p> <p>This FU is available with or without VDIS on the intermediate busbar. Without VDIS there is only one gas vessel, with VDIS there are 2 gas vessels linked by an isolated screened intermediate busbar plugged on external bushings.</p> <p>The earthing-switches are used to earth the opposite connected busbar.</p> <p>There are no crossed interlocks between the earthing-switches and their opposite disconnecter.</p> <p>This FU has partitions between the different busbar sections it includes.</p> <p>This FU is only allowed in GIS with $I_r \geq 1250A$.</p> <p>In customer substations, this FU is only allowed downstream the general protection.</p>
	<p>C(DBN8)1(KBN4)1</p> <p>FU busbar coupler with double disconnection, one constituent according to DBN8, the other to KBN4, and a VDIS on every connected busbar.</p> <p>This FU is identical to FU C(DBN8)1(SBN3)1 except that the disconnecter is replaced by a switch-disconnector.</p> <p>This FU is only allowed in GIS with $I_r \geq 1250A$.</p> <p>In customer substations, this FU is only allowed downstream the general protection</p>
	<p>C(DwBN1)(RBZ2)</p> <p>FU busbar coupler with single disconnection, one constituent according to DwBN1, the other to RBZ2, .</p> <p>The earthing-switch in DwBN1 is used to earth the busbar connected to RBZ2.</p> <p>This FU has partitions between the different busbar sections it includes.</p> <p>This FU is only allowed in AIS with $I_r \geq 1250A$.</p> <p>In customer substations, this FU is only allowed downstream the general protection.</p>

<p style="text-align: center;">C(D_wBN1)(RBZ2&P_wB32)</p> 	<p>C(D_wBN1)(RBZ2&P_wB32) FU busbar coupler with single disconnection, one constituent according to DwBN1, the other to RBZ2 & P_wB32, and no VDIS on the busbar connected to the constituent DwBN1. This FU is identical to FU C(D_wBN1)(RBZ2) except that the FU P_wB32 is added to the RBZ2. This FU is only allowed in AIS with $I_r \geq 1250A$. In customer substations, this FU is only allowed downstream the general protection.</p>
<p style="text-align: center;">C(D_wBN1)(S_wBN1)</p> 	<p>C(D_wBN1)(S_wBN1) FU busbar coupler with double disconnection, one constituent according to DwBN1, the other to S_wBN1, and no VDIS on any connected busbar. The earthing-switches on the intermediate busbar are used to earth the opposite connected busbar. There is no crossed interlock between an earthing-switch and his opposite withdrawable truck. There are blocking magnets for the manual closing operation of both earthing-switches and for the manual racking operation of the withdrawable trucks. This FU has partitions between the different busbar sections it includes. This FU is only allowed in AIS with $I_r \geq 1250A$. In customer substations, this FU is only allowed downstream the general protection.</p>
<p style="text-align: center;">C(D_wBZ1)(RBZ2)</p> 	<p>C(D_wBZ1)(RBZ2) FU busbar coupler with single disconnection, one constituent according to DwBZ1, the other to RBZ2. This FU is identical to FU C(D_wBN1)(RBZ2) except that it has no earthing-switch. This FU is only allowed in AIS with $I_r \geq 1250A$. In customer substations, this FU is only allowed downstream the general protection.</p>



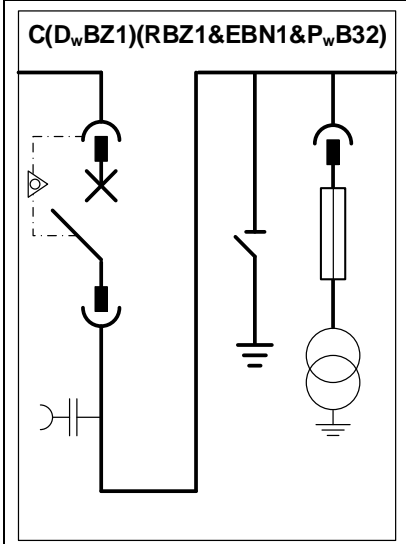
C(D_wBZ1)(RBZ1&EBN1)

FU busbar coupler with single disconnection, one constituent according to DwBZ1, the other to RBZ1 & EBN1.

This FU is identical to FU C(DwBN1)(RBZ2) except that for earthing the busbar connected to RBZ1 the function FU EBN1 is added to this function RBZ2 and that there are no earthing bolts in the riser.

This FU is only allowed in AIS with $I_r \geq 1250A$.

In customer substations, this FU is only allowed downstream the general protection.



C(D_wBZ1)(RBZ1&EBN1&P_wB32)

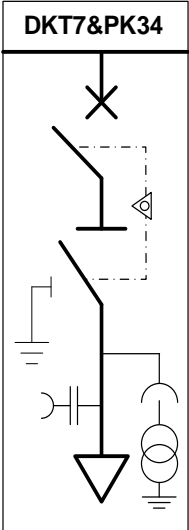
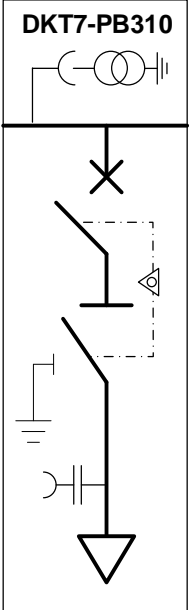
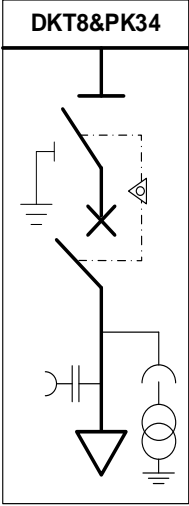
FU busbar coupler with single disconnection, one constituent according to DwBZ1, the other to RBZ1 & EBN1 & PwB32,.

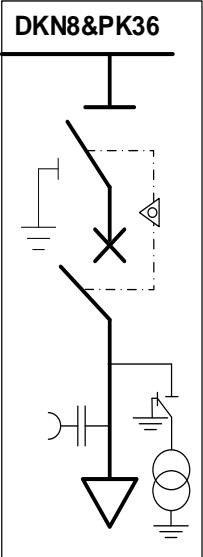
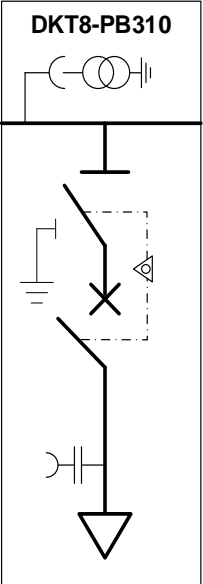
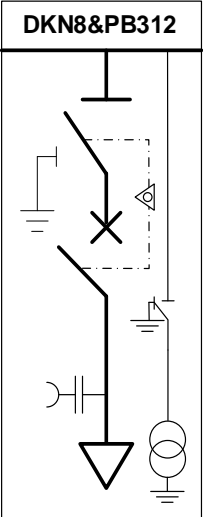
This FU is identical to FU C(DwBN1)(RBZ1&EBN1) except that the FU PwB32 is added to RBZ1.

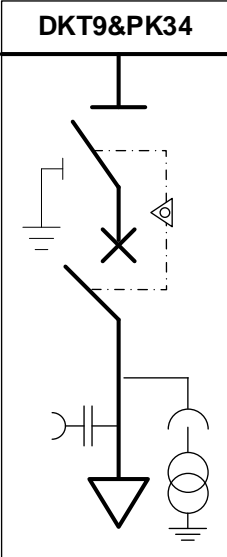
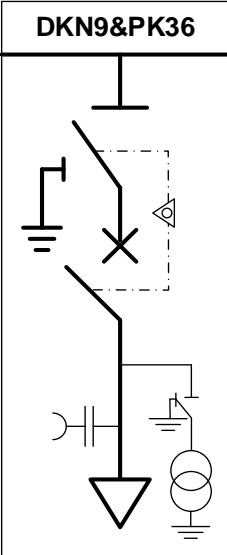
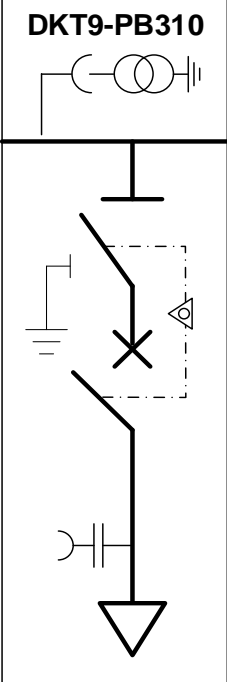
This FU is only allowed in AIS with $I_r \geq 1250A$.

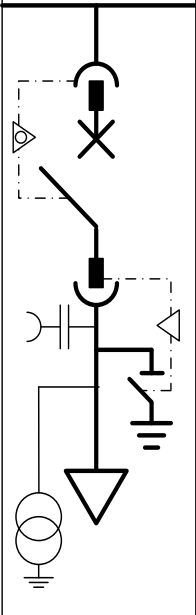
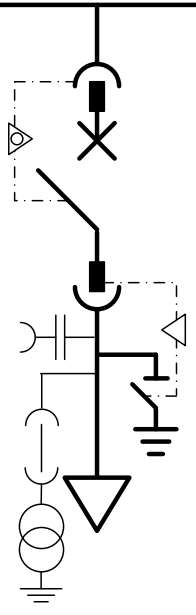
In customer substations, this FU is only allowed downstream the general protection.

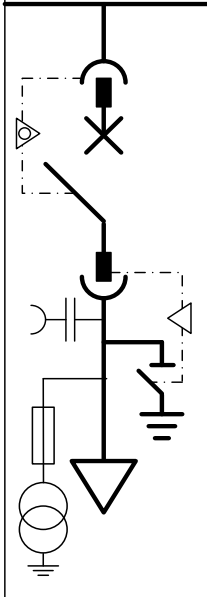
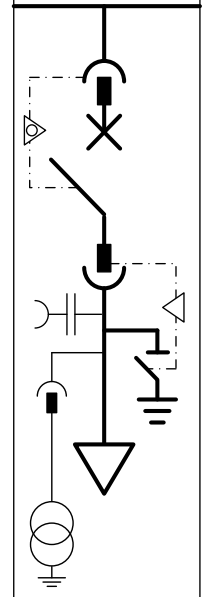
3.10 Combinations of FUs

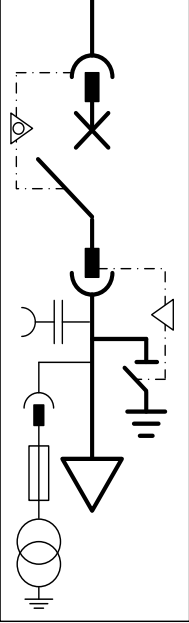
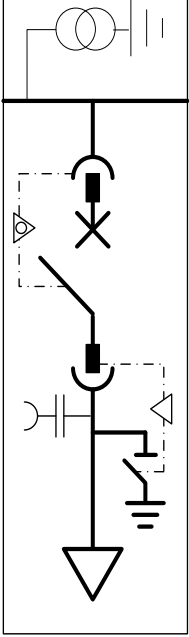
<p style="text-align: center;">DKT7&PK34</p> 	<p>DKT7&PK34 Combination only allowed downstream a general protection.</p>
<p style="text-align: center;">DKT7-PB310</p> 	<p>DKT7-PB310 Combination only allowed downstream a general protection.</p>
<p style="text-align: center;">DKT8&PK34</p> 	<p>DKT8&PK34 Combination only allowed downstream a general protection.</p>

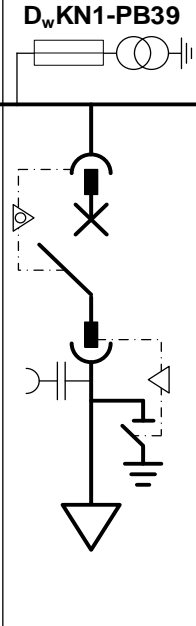
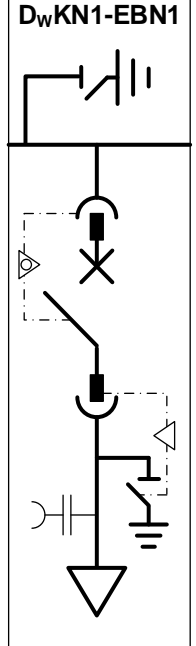
<p>DKN8&PK36</p>  <p>The diagram shows a vertical circuit. At the top is a horizontal busbar. Below it is a switch. To the left of the switch is a fault indicator symbol (a triangle with a diagonal line). Below the switch is a capacitor symbol. At the bottom is a transformer symbol. A dashed box encloses the switch and the fault indicator.</p>	<p>DKN8&PK36</p>
<p>DKT8-PB310</p>  <p>The diagram shows a vertical circuit. At the top is a transformer symbol. Below it is a switch. To the left of the switch is a fault indicator symbol. Below the switch is a capacitor symbol. At the bottom is a downward-pointing triangle. A dashed box encloses the switch and the fault indicator.</p>	<p>DKT8-PB310 Combination only allowed downstream a general protection.</p>
<p>DKN8&PB312</p>  <p>The diagram shows a vertical circuit. At the top is a horizontal busbar. Below it is a switch. To the left of the switch is a fault indicator symbol. Below the switch is a capacitor symbol. At the bottom is a transformer symbol. A dashed box encloses the switch and the fault indicator.</p>	<p>DKN8&PB312</p>

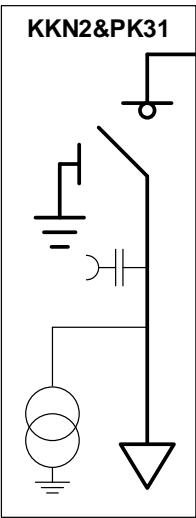
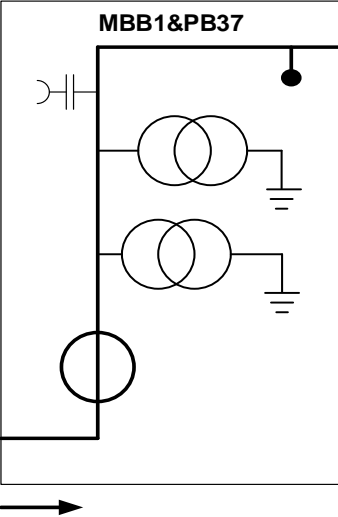
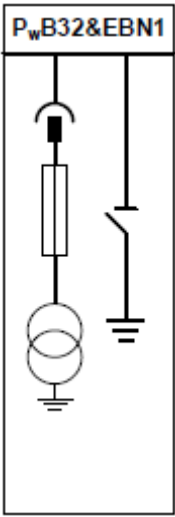
<p style="text-align: center;">DKT9&PK34</p> 	<p>DKT9&PK34 Combination only allowed downstream a general protection.</p>
<p style="text-align: center;">DKN9&PK36</p> 	<p>DKN9&PK36</p>
<p style="text-align: center;">DKT9-PB310</p> 	<p>DKT9-PB310 Combination only allowed downstream a general protection.</p>

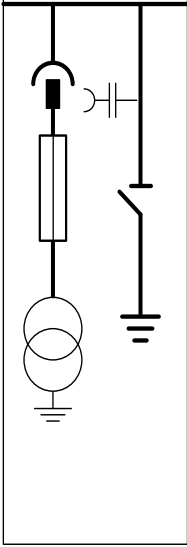
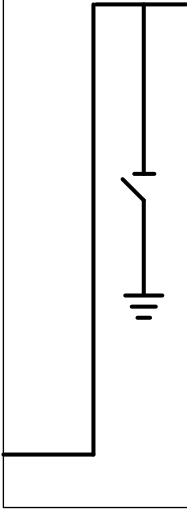
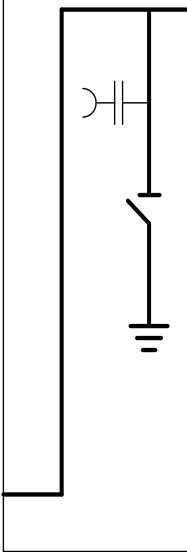
<p>D_wKN1&PK31</p> 	<p>DwKN1&PK31 (old code DW1N2) Combination only allowed downstream a general protection.</p>
<p>D_wKN1&PK32</p> 	<p>DwKN1&PK32 (old code Dw1N2 + VTs disconnecting conductors)</p>

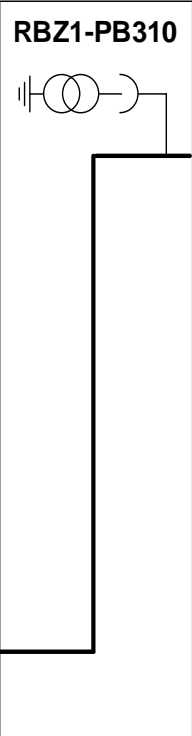
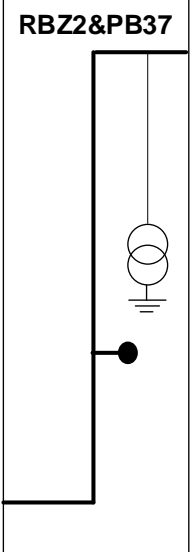
<p>D_wKN1&PK33</p> 	<p>D_wKN1&PK33 (old code Dw1N2 + VTs disconnecting fuses)</p>
<p>D_wKN1&P_wK31</p> 	<p>D_wKN1&P_wK31 (old code Dw1N2 + withdrawable VTs)</p>

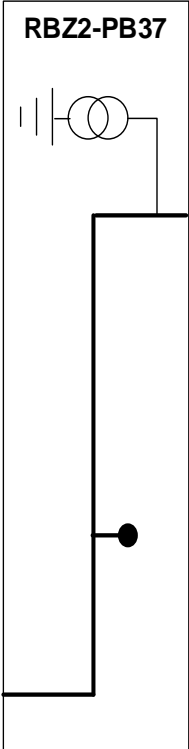
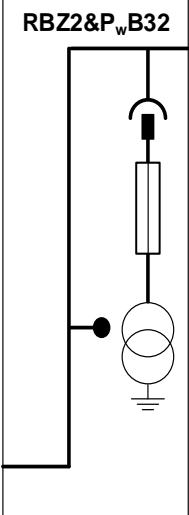
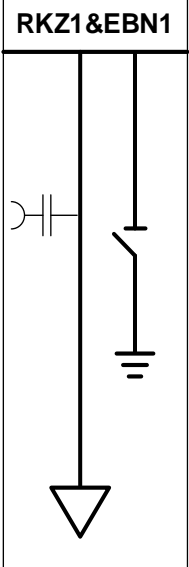
<p>D_wKN1&P_wK32</p>  <p>The diagram shows a vertical circuit. At the top, a line enters a switch. Below the switch is a fuse. A dashed box encloses the switch and fuse. Below the fuse, the circuit branches into two paths: one leading to a VT (voltage transformer) symbol and another leading to a busbar. From the busbar, a line goes down to another switch, then to a second fuse, and finally to a second VT. To the left of the busbar, there is a branch with a fuse and a VT. At the bottom, there is a transformer symbol and a battery symbol.</p>	<p>D_wKN1&P_wK32 (old code Dw1N2 + fuse protect. withdrawable. VTs)</p>
<p>D_wKN1-PB37</p>  <p>The diagram shows a vertical circuit. At the top, a transformer symbol is connected to a line. Below the transformer, the line enters a switch. Below the switch is a fuse. A dashed box encloses the switch and fuse. Below the fuse, the circuit branches into two paths: one leading to a VT (voltage transformer) symbol and another leading to a busbar. From the busbar, a line goes down to another switch, then to a second fuse, and finally to a second VT. To the left of the busbar, there is a branch with a fuse and a VT. At the bottom, there is a transformer symbol and a battery symbol.</p>	<p>D_wKN1-PB37 (old code DW1NP03) Combination only allowed downstream a general protection.</p>

<p>D_wKN1-PB39</p>  <p>The diagram shows a fuse at the top, followed by a switch. Below the switch is a VT (voltage transformer) with a disconnecting fuse. The VT is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding.</p>	<p>D_wKN1-PB39 (old code DW1NP03 + VTs disconnecting fuses)</p>
<p>D_wKN1-EBN1</p>  <p>The diagram shows a switch at the top, followed by a VT (voltage transformer) with a disconnecting fuse. The VT is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding. The primary winding is connected to a secondary winding, which is then connected to a primary winding.</p>	<p>D_wKN1-EBN1 In customer substations, this combination is only allowed downstream the general protection.</p>

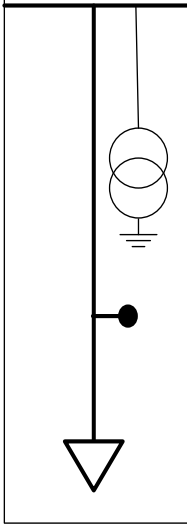
 <p>KKN2&PK31</p>	<p>KKN2 & PK31 This combination is only allowed in GIS If there are CTs added this FU can be used for measuring but only in the customers part. Such an FU is not allowed as an FU-M for billing purposes.</p>
 <p>MBB1&PB37</p>	<p>MBB1 & PB37 In case of a second set of 3 phase-to-earth VTs is installed in a FU metering, the extra code "& PB37" must be added behind the main code Mxxx.</p>
 <p>P_wB32&EBN1</p>	<p>PwB32 & EBN1 (old code PW33) In customer substations, this combination is only allowed downstream the general protection.</p>

<p>P_wB32&EBN2</p> 	<p>PwB32 & EBN2 (old code PW33 + VDS) In customer substations, this combination is only allowed downstream the general.</p>
<p>RBZ1&EBN1</p> 	<p>RBZ1 & EBN1 (old code RB1E) This combination is also allowed in AIS. In customer substations, this combination is only allowed downstream the general protection.</p>
<p>RBZ1&EBN2</p> 	<p>RBZ1 & EBN2 (old code RB1E + VDS) in AIS In customer substations, this combination is only allowed downstream the general protection.</p>

<p>RBZ1-PB310</p>  <p>The diagram shows a vertical busbar with a horizontal line extending to the left. At the top of the busbar, there is a circuit breaker symbol (two overlapping circles) connected to a ground symbol (three horizontal lines of decreasing length). A vertical line connects the top of the busbar to the circuit breaker.</p>	<p>RBZ1 - PB310 This combination is only allowed in GIS, and downstream a general protection.</p>
<p>RBZ2&PB37</p>  <p>The diagram shows a vertical busbar with a horizontal line extending to the left. A vertical line connects the top of the busbar to a circuit breaker symbol (two overlapping circles). Below the circuit breaker is a ground symbol (three horizontal lines of decreasing length). A horizontal line connects the bottom of the circuit breaker to a solid black circle on the busbar.</p>	<p>RBZ2 & PB37 (old code RB12P03 + earthing bolts) This combination is only allowed in AIS, and downstream a general protection.</p>

<p>RBZ2-PB37</p> 	<p>RBZ2 - PB37 This combination is only allowed in AIS, and downstream a general protection.</p>
<p>RBZ2&P_wB32</p> 	<p>RBZ2 & PwB32 (old code RP12PW3 + Arcus bolts) This combination is only allowed in AIS and downstream a general protection.</p>
<p>RKZ1&EBN1</p> 	<p>RKZ1 & EBN1 (old code RB2E + VDS) This combination is only allowed downstream a general protection.</p>

RKZ2&PB37



RKZ2 & PB37

This combination is only allowed in AIS, and downstream a general protection.