C2/119

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

version 04.2020

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1 IDENTIFICATION CODING

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

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

Centerlines 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 the mean of screened insulated separable elbow plug connectors, spherical head M12 bolts 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 = FU feeder with switch-disconnector
  - T = FU protection feeder with switch-fuse combination
  - D = FU protection feeder with circuit-breaker
  - M = FU power metering for billing
  - P = FU or function voltage metering or voltage transformer
  - R = FU riser
  - E = FU busbar earthing
  - S = FU or function feeder with disconnector
  - C = FU busbar coupler

  Remarks :
  - First identifiers D and P can be followed by a ‘’w’’ which means that the function is withdrawable.
  - First identifier 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…)
  - First identifier C can be followed by a ‘’t’’ which means that it is mounted on top of other FU’s.

- **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 for income and one for outlet, the 2nd identifier indicates the type of connection for the income of the FU.

  Pour FU or function 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.

  For FU type 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 the type of earthing on the side of the connection :
  - N : intended for connection to a network. This identifier means with earthing function with full short-circuit making capacity on the side of the connection. In addition, in case of FU with first identifier 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 with earthing function with limited short-circuit making capacity on the side of the connection. In addition, in case of FU with first identifier 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.

  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 (function) E, the 3rd identifier shall always be N as it is a busbar earthing function.

  Pour 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 VDS 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

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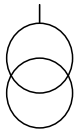
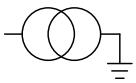
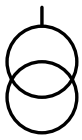
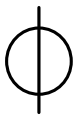
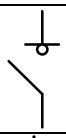
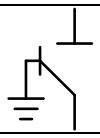
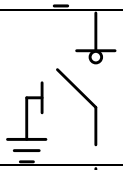
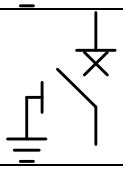
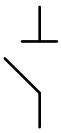
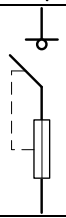
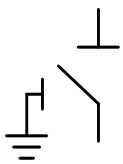
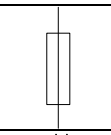
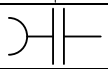
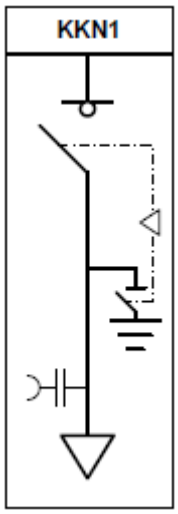
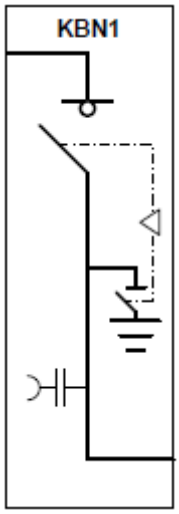
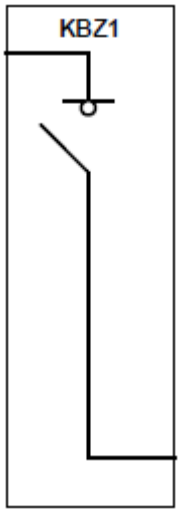
2 LEGEND

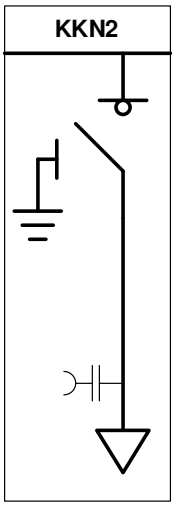
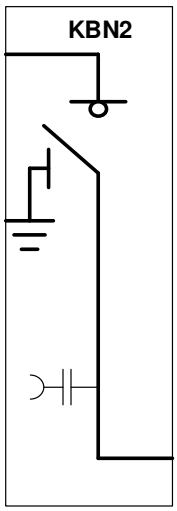
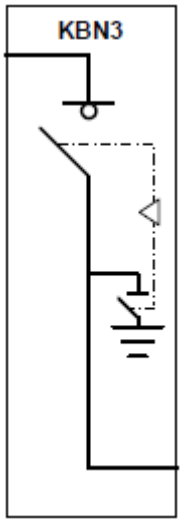
	Device or circuit with full peak/short-time current withstand and device with full short-circuit making capacity (except for disconnectors)		Phase-to-phase voltage transformers
	Device or circuit with limited peak/short-time current withstand and device with limited short-circuit making capacity		Phase-to-earth voltage transformers
	Withdrawable circuit		Power transformers
	Pluggable circuit		Current transformer
	Switch-disconnector		2-position disconnector and earthing-switch. The 2 positions are Connected to main-circuit and connected to earth.
	Earthing-switch		Cable connection
	3-positions switch-disconnector and earthing-switch.		Mechanical link
	3-positions circuit-breaker-disconnector and earthing-switch		Mechanical link between the operation of an earthing-switch and the operation of the earthing-switch of a 3-positions device
	Disconnector		2-directions mechanical interlock between an earthing-switch and a (switch-)disconnector. If one of the devices is in closed position, the other-one cannot be closed.
	Circuit-breaker		Mechanical interlock. The disconnector can only be operated if the switch or circuit-breaker is in opened position.
	Switch-fuse combination		Mechanical interlock. The 2-positions disconnector/earthing-switch can only be operated if the switch is in opened position.
	3 positions switch-fuse combination and earthing-switch		3 positions disconnector earthing-switch

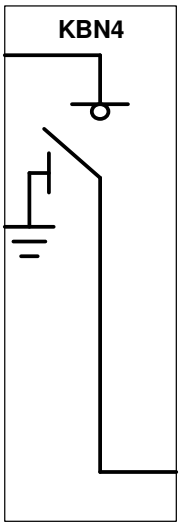
	Fuse		Disconnectable conductor
	VDS (voltage detection system)		Spherical earthing bolt

3 SCHEMES

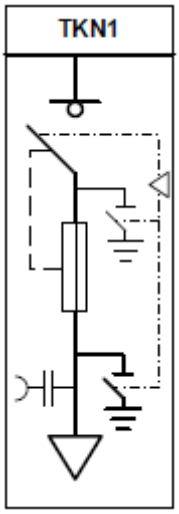
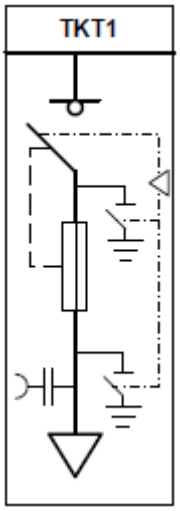
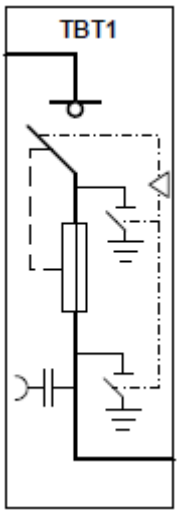
3.1 F.U. type K

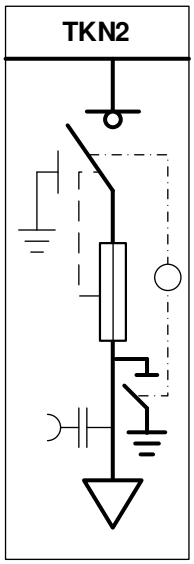
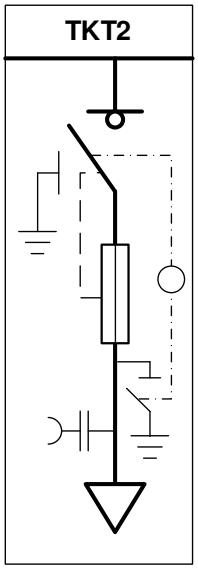
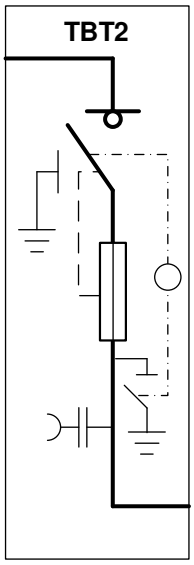
	KKN1 (old code K1N) FU cable feeder with one 2-positions switch-disconnector, one earthing-switch on the cable side and one VDS on the cable side. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is interlocked with the position of the earthing-switch and reversely.
	KBN1 (old code K1BE) FU busbar feeder with upper busbar section, lower busbar connection, one 2-positions switch-disconnector, one earthing-switch on the lower busbar side and one VDS 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.
	KBZ1 (no old code existing) FU busbar feeder with upper busbar section, lower busbar connection and one 2-positions switch-disconnector, without earthing-switch nor VDS.

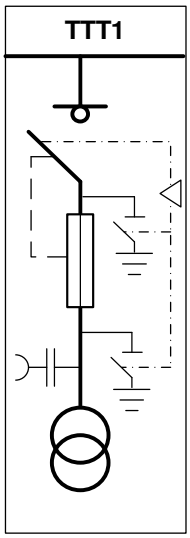
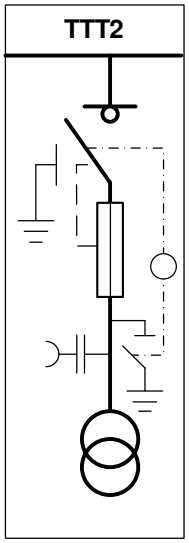
	KKN2 (old code K2N) FU cable feeder with one 3-positions switch-disconnector and earthing-switch on the cable side and one VDS on the cable side. The earthing-switch has the full short-circuit making capacity The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.
	KBN2 (old code K2BE) FU busbar feeder with upper busbar section, lower busbar connection, one 3-positions switch-disconnector and earthing-switch on the lower busbar side and one VDS on the lower busbar side. 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.
	KBN3 (no old code existing) FU busbar feeder with upper busbar section, lower busbar connection, one 2-positions switch-disconnector, one earthing-switch on the lower busbar side, without VDS 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 stand-alone FU but only within a coupling FU.

	KBN4 (no old code existing) FU busbar feeder with upper busbar section, lower busbar connection, one 3-positions switch-disconnector and earthing-switch on the lower busbar side, without VDS on the lower busbar side. 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 stand-alone FU but only within a coupling FU.

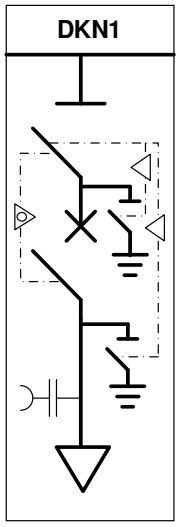
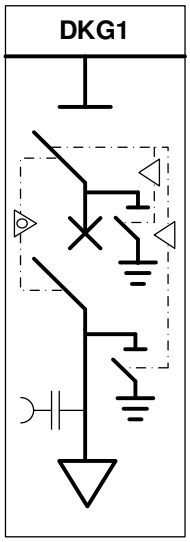
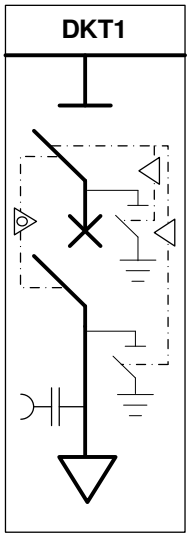
3.2 F.U. type T

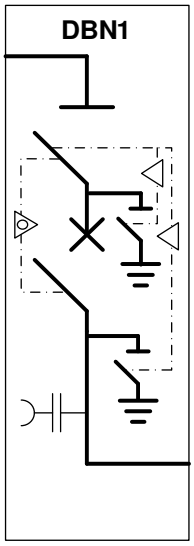
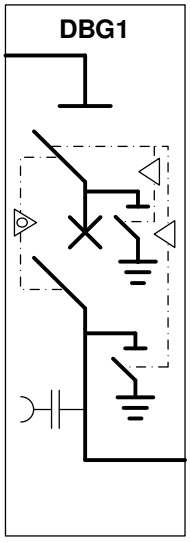
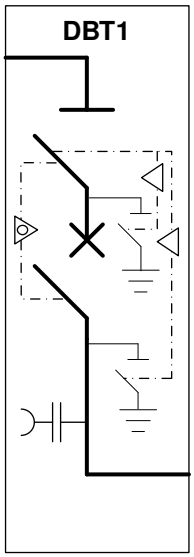
	TKN1 (old code T1N) FU cable feeder with one 2-positions switch-disconnector-fuse combination, 2 earthing-switches, one upstream the fuses, one downstream the fuses on the cable side, and one VDS downstream the fuses on the cable side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has the full short-circuit making capacity. The earthing-switch upstream 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.
	TKT1 (old code T1T) FU transformer feeder with one 2-positions switch-disconnector-fuse combination, 2 earthing-switches, one upstream the fuses, one downstream the fuses on the cable side, and one VDS downstream the fuses on the cable side. This FU is identical to FU TKN1 except that the earthing-switch downstream the fuses has a limited short-circuit making capacity and that the min required Pref of the fuses is lower (see C2/113-3).
	TBT1 (old code T1BE) FU transformer feeder with upper busbar section, lower busbar connection, one 2-positions switch-disconnector-fuse combination, 2 earthing-switches, one upstream the fuses, one downstream the fuses on the lower busbar side, and one VDS downstream the fuses on the lower busbar side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has a limited short-circuit making capacity. The earthing-switch upstream 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.

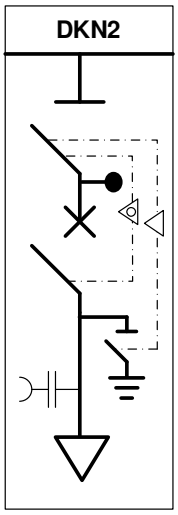
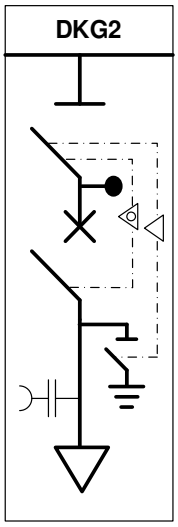
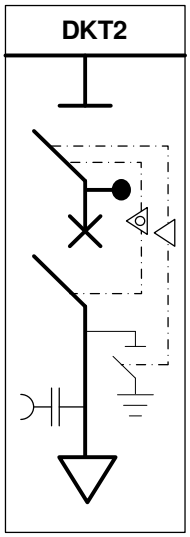
	TKN2 (old code T5N) FU cable feeder with one 3-positions switch-disconnector-fuse combination and earthing-switch upstream the fuses, one second earthing-switch downstream the fuses on the cable side, and one VDS downstream the fuses on the cable side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has the full short-circuit making capacity. The earthing-switch upstream 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.
	TKT2 (old code T5T) FU transformer feeder with one 3-positions switch-disconnector-fuse combination and earthing-switch upstream the fuses, one second earthing-switch downstream the fuses on the cable side, and one VDS downstream the fuses on the cable side. Both earthing-switches are operated together by one common mechanism. This FU is identical to FU TKN2 except that the earthing-switch downstream the fuses has a limited short-circuit making capacity and that the min required Pref of the fuses is lower (see C2/113-3).
	TBT2 (old code T5BE) FU transformer feeder with upper busbar section, lower busbar connection, one 3-positions switch-disconnector-fuse combination and earthing-switch upstream the fuses, one second earthing-switch downstream the fuses on the lower busbar side, and one VDS downstream the fuses on the lower busbar side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has a limited short-circuit making capacity. The earthing-switch upstream 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.

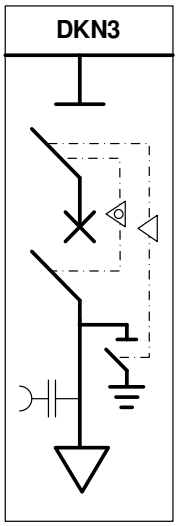
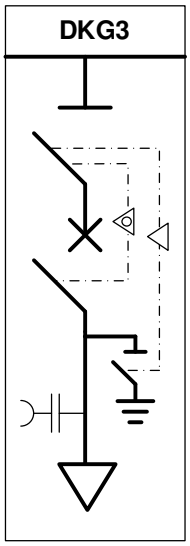
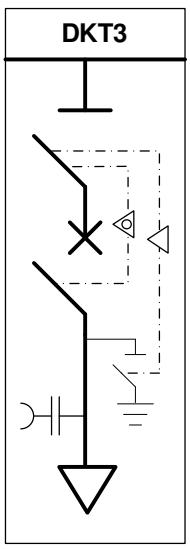
	TTT1 (new code) FU auxiliary feeder with one auxiliary 3-phase power-transformer, one 2-positions switch-disconnector-fuse combination, 2 earthing-switches, one upstream the fuses, one downstream the fuses on the auxiliary transformer side, and one VDS downstream the fuses on the auxiliary transformer side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has a limited short-circuit making capacity. The earthing-switch upstream 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.
	TTT2 (new code) FU auxiliary feeder with one auxiliary 3-phase power-transformer, one 3-positions switch-disconnector-fuse combination and earthing-switch upstream the fuses, one second earthing-switch downstream the fuses on the auxiliary transformer side, and one VDS downstream the fuses on the auxiliary transformer side. Both earthing-switches are operated together by one common mechanism. The earthing-switch downstream the fuses has a limited short-circuit making capacity. The earthing-switch upstream 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.

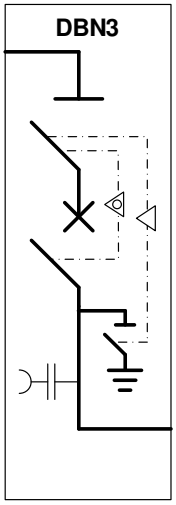
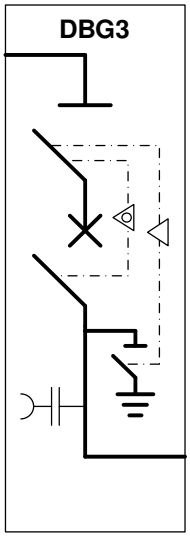
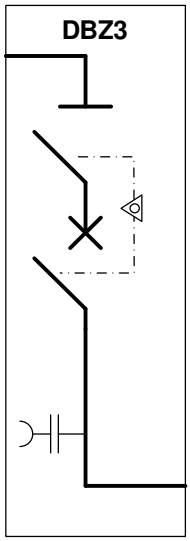
3.3 F.U. type D

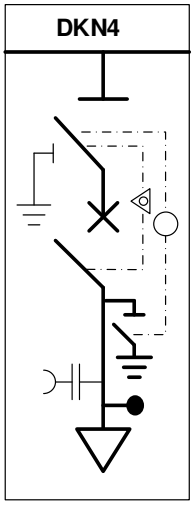
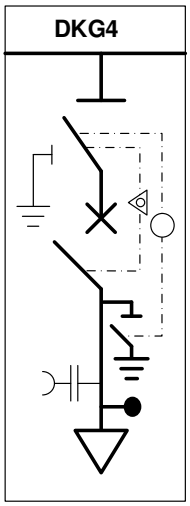
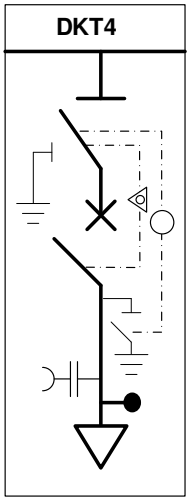
	DKN1 (old code D2N) FU cable feeder with circuit-breaker, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the cable side. 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 and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed with AIS technology.
	DKG1 (no old code existing) FU installation feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the cable side. 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 with AIS technology.
	DKT1 (old code D2T) FU transformer feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the cable side. The ratings, functionalities and design of this FU are identical to the ones of FU DKN1 except that : • 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 interface can be different This FU is only allowed with AIS technology.

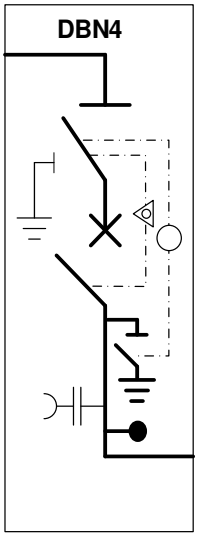
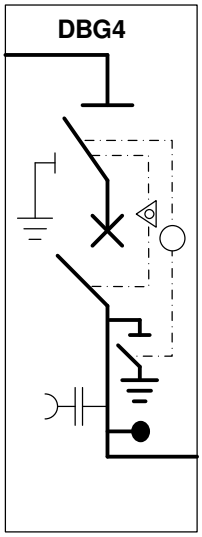
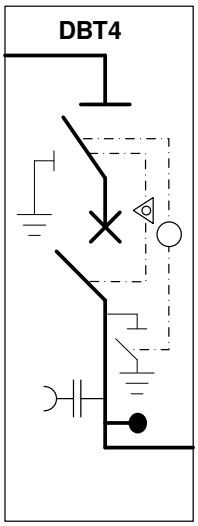
	DBN1 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the lower busbar side. 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 and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed with AIS technology.
	DBG1 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the lower busbar side. 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) This FU is only allowed with AIS technology.
	DBT1 (old code D2BE) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, 2 earthing-switches, one upstream and one downstream the circuit-breaker, and one VDS downstream the circuit-breaker on the lower busbar side. The ratings, functionalities and design of this FU are identical to the ones of FU DBN1 except that : • 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 This FU is only allowed with AIS technology.

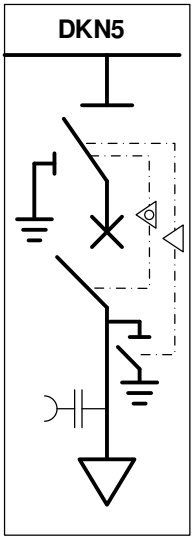
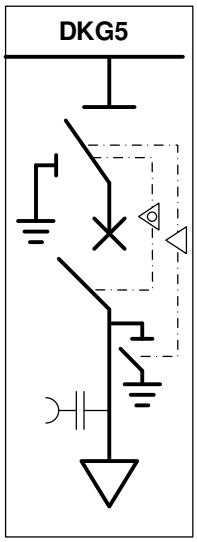
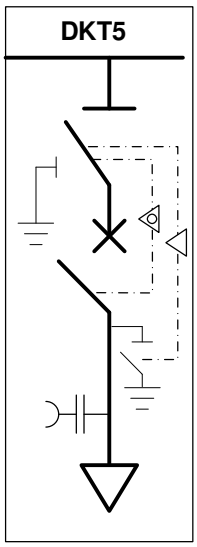
	DKN2 (old code D3N) FU cable feeder with circuit-breaker, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, earthing connections upstream the circuit-breaker, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. 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 disconnector (or switch-disconnector) is 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 with AIS technology.
	DKG2 (no old code existing) FU installation feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, earthing connections upstream the circuit-breaker, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. 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 with AIS technology.
	DKT2 (old code D3T) FU transformer feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, earthing connections upstream the circuit-breaker, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKN2 except that : • 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 interface can be different. This FU is only allowed with AIS technology.

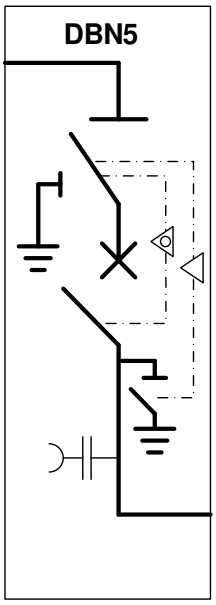
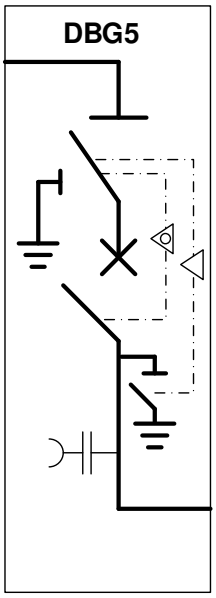
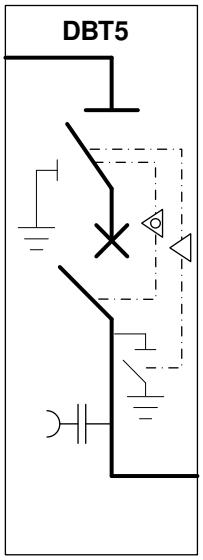
	DKN3 (old code D30N) FU cable feeder with circuit-breaker, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. The circuit-breaker operates according to 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 disconnector (or switch-disconnector) is 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 with GIS technology.
	DKG3 (no old code existing) FU installation feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. 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). This FU is only allowed with GIS technology.
	DKT3 (no old code existing) FU transformer feeder with circuit-breaker, cable connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the cable side, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKN3 except that : • 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 interface can be different. This FU is only allowed with GIS technology.

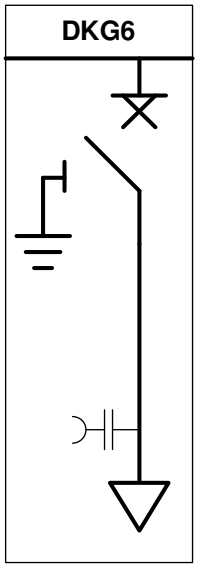
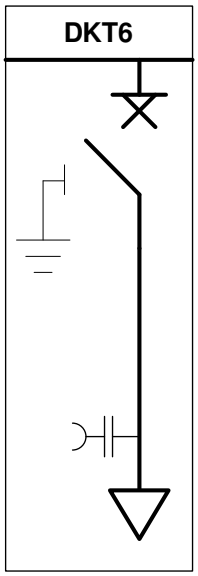
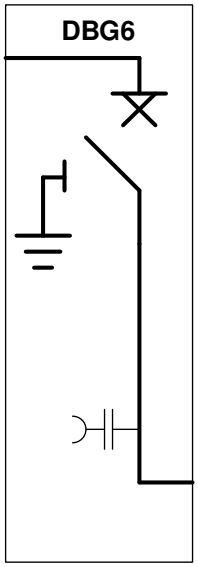
	DBN3 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, one earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. 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 disconnector (or switch-disconnector) is 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 with GIS technology.
	DBG3 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, one earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. 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). This FU is only allowed with GIS technology.
	DBZ3 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, one 2-positions disconnector (or switch-disconnector) on the upper busbar side, the circuit-breaker on the lower busbar side, a VDS downstream the circuit-breaker on the lower busbar side and no earthing-switch downstream the circuit-breaker on the lower busbar side. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed with GIS technology downstream the general protection or as one part of a FU C.

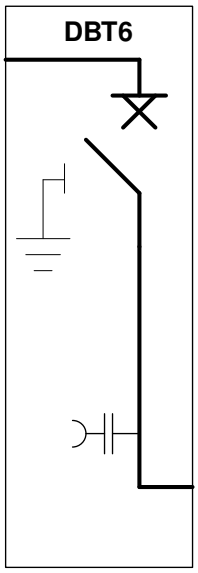
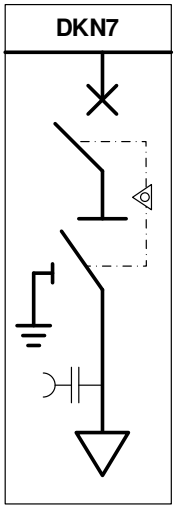
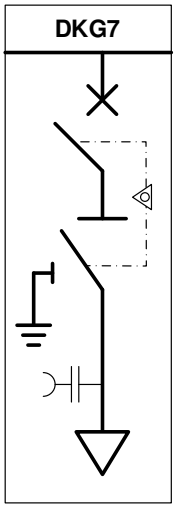
	DKN4 (old code D4N) FU cable feeder with circuit-breaker, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the cable side. 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 downstream the circuit-breaker on cable side has the full short-circuit making capacity. The earthing-switch upstream 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 downstream 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 with AIS technology.
	DKG4 (no old code existing) FU installation feeder with circuit-breaker, cable connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the cable side. 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 with AIS technology.
	DKT4 (old code D4T) FU transformer feeder with circuit-breaker, cable connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKN4 except that : • 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 interface can be different. This FU is only allowed with AIS technology.

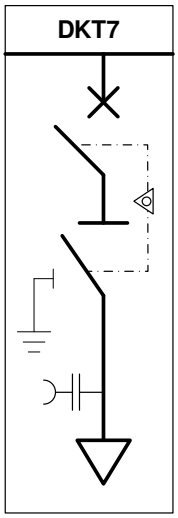
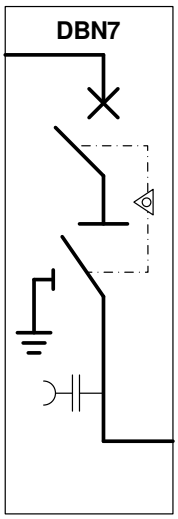
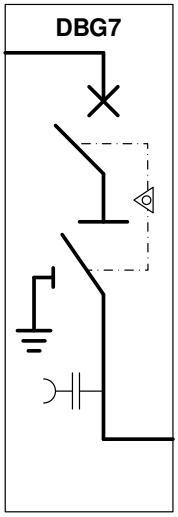
	DBN4 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the lower busbar side. 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 downstream the circuit-breaker on the lower busbar side has the full short-circuit making capacity. The earthing-switch upstream 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 downstream 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 with AIS technology.
	DBG4 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the lower busbar side. 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 with AIS technology.
	DBT4 (old code D4BE) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch, one VDS and earthing connections downstream the circuit-breaker on the lower busbar side. The ratings, functionalities and design of this FU are identical to the ones of FU DBN4 except that : • 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 This FU is only allowed with AIS technology.

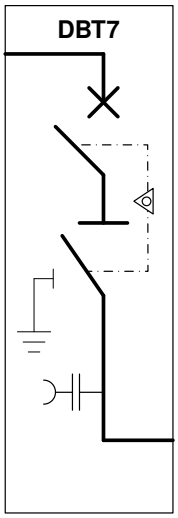
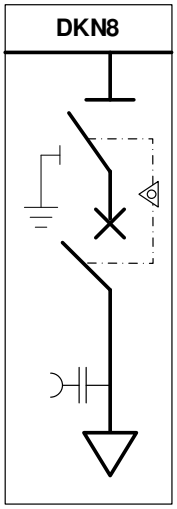
	DKN5 (old code D5N) FU cable feeder with circuit-breaker, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch and one VDS downstream the circuit-breaker on the cable side. The circuit-breaker 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 upstream the circuit-breaker) and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed with AIS technology.
	DKG5 (no old code existing) FU installation feeder with circuit-breaker, cable connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch and one VDS downstream the circuit-breaker on the cable side. 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 with AIS technology.
	DKT5 (old code D5T) FU transformer feeder with circuit-breaker, cable connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the cable side, one second earthing-switch and one VDS downstream the circuit-breaker on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKN5 except that : • 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 interface can be different. This FU is only allowed with AIS technology.

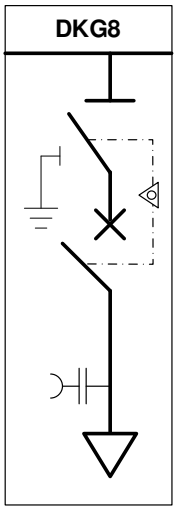
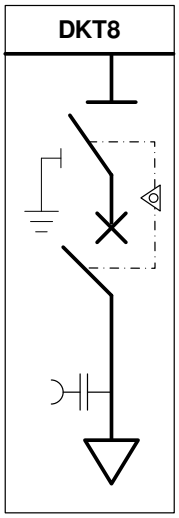
	DBN5 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. 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 upstream the circuit-breaker) and reversely. The operation of the disconnector is interlocked with the position of the circuit-breaker. This FU is only allowed with AIS technology.
	DBG5 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. 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). This FU is only allowed with AIS technology.
	DBT5 (old code D5BE) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the circuit-breaker on the lower busbar side, one second earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. The ratings, functionalities and design of this FU are identical to the ones of DBN5 except that : • 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. This FU is only allowed with AIS technology.

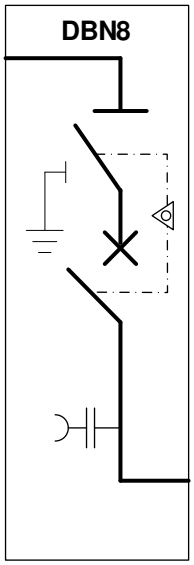
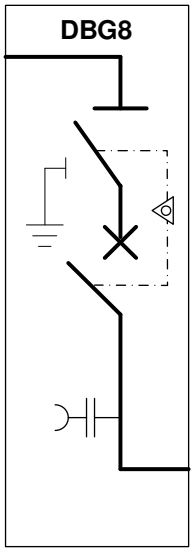
	DKG6 (no old code existing) FU installation feeder with a 3-positions circuit-breaker-disconnector earthing-switch, cable connection, the earthing-switch and one VDS on the cable side. The circuit-breaker operates according to the sequence O-3min-CO-3min-CO. The earthing-switch has the full short-circuit 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's compartment to test the complete protection. This FU is only allowed with GIS technology.
	DKT6 (old code D6T) FU transformer feeder with a 3-positions circuit-breaker-disconnector earthing-switch, cable connection, the earthing-switch and one VDS on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKG6 except that : • 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 interface can be different (see C2/113-4 § 5.1.2) This FU is only allowed with GIS technology.
	DBG6 (old code D6BE) FU installation feeder with one 3-positions circuit-breaker-disconnector earthing-switch, upper busbar section, lower busbar connection, the earthing-switch and one VDS 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 with GIS technology.

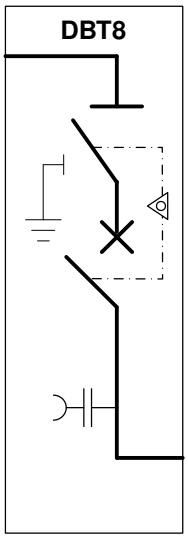
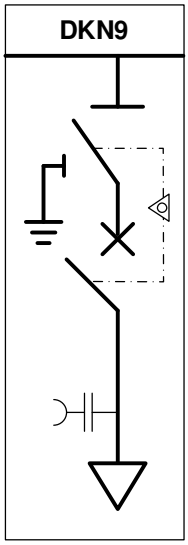
	DBT6 (no old code existing) FU transformer feeder with one 3-positions circuit-breaker-disconnector earthing-switch, upper busbar section, lower busbar connection, the earthing-switch and one VDS on the lower busbar side. The ratings, functionalities and design of this FU are identical to the ones of DBG6 except that : • 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 interface can be different (see C2/113-4 § 5.1.2) This FU is only allowed with GIS technology.
	DKN7 (old code D7N) FU cable feeder with circuit-breaker, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the cable side and one VDS on the cable side. 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 disconnector (or switch-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 with GIS technology.
	DKG7 (no old code existing) FU installation feeder with circuit-breaker, cable connection, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the cable side and one VDS on the cable side. 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). This FU is only allowed with GIS technology.

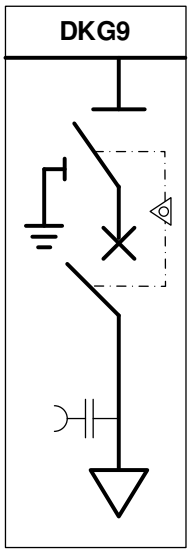
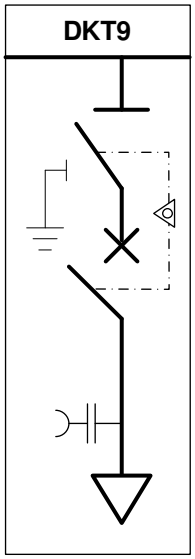
	DKT7 (old code D7T) FU transformer feeder with circuit-breaker, cable connection, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the cable side and one VDS on the cable side. The ratings, functionalities and design of this FU are identical to the ones of DKN7 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DBN7 (old code D7BE) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the lower busbar side and one VDS on the lower busbar side. 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 disconnector (or switch-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 with GIS technology.
	DBG7 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the lower busbar side and one VDS on the lower busbar side. 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). This FU is only allowed with GIS technology.

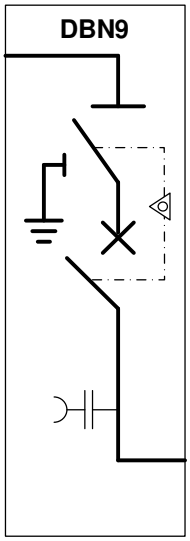
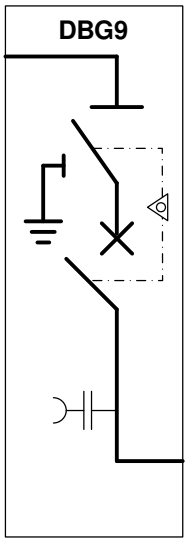
	DBT7 (no old code existing) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the upper busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch downstream the circuit-breaker on the lower busbar side and one VDS on the lower busbar side. The ratings, functionalities and design of this FU are identical to the ones of DBN7 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DKN8 (old code D9N) FU cable feeder with circuit-breaker, the circuit-breaker on the cable side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. 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 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 case of 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 with GIS technology.

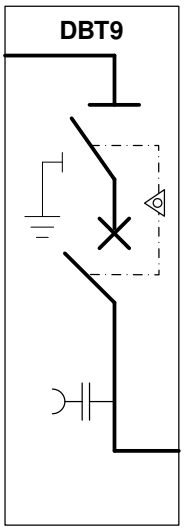
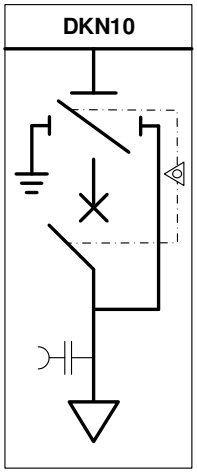
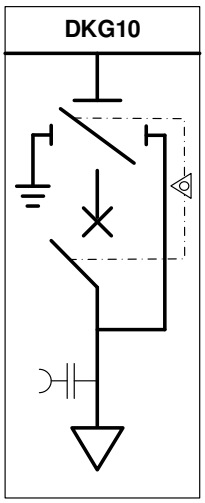
	DKG8 (no old code existing) FU installation feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. The ratings, features, functionalities and 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 with GIS technology.
	DKT8 (no old code existing) FU transformer feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. The ratings, features, functionalities and design of this FU are identical to the ones of DKN8 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.

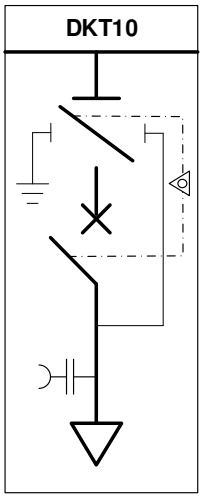
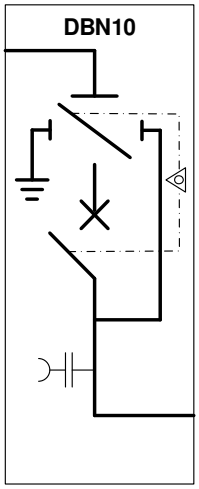
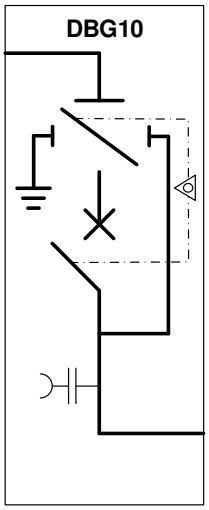
	DBN8 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. The 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 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 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. In 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 case of 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. 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 with GIS technology.
	DBG8 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. 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). This FU is only allowed with GIS technology.

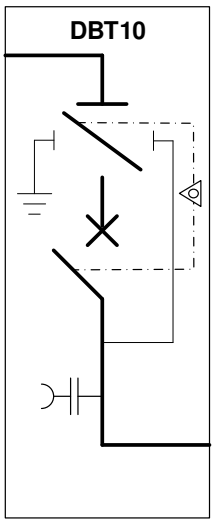
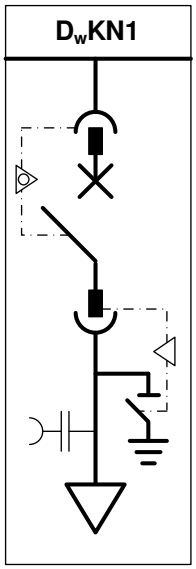
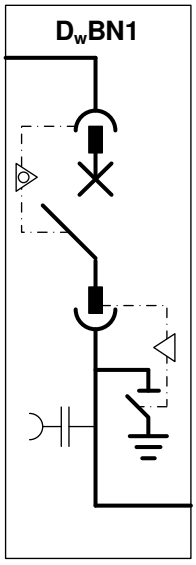
	DBT8 (no old code existing) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. The ratings, features, functionalities and design of this FU are identical to the ones of DBN8 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DKN9 (no old code existing) FU cable feeder with circuit-breaker, the circuit-breaker on the cable side, one 3-positions disconnector (or switch-disconnector) earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. 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 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 cable side can operate the circuit-breaker and the earthing-switch together or sequentially. The earthing-switch has the full short-circuit making capacity. The earthing-switch shall close after the circuit-breaker. In 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 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. The closing operation of the disconnector (or switch-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. 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. This FU is only allowed with GIS technology.

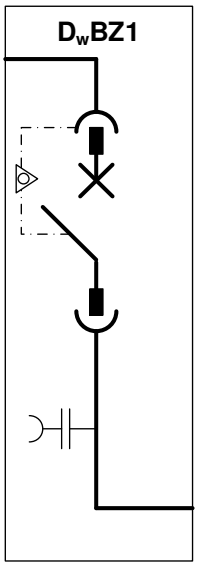
	DKG9 (no old code existing) FU installation feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector (or switch-disconnector) earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. The ratings, features, 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 with GIS technology.
	DKT9 (no old code existing) FU transformer feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the cable side. The ratings, features, functionalities and design of this FU are identical to the ones of DKN9 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.

	DBN9 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. 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 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 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. The closing operation of the disconnector (or switch-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. 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. This FU is only allowed with GIS technology.
	DBG9 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. 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). This FU is only allowed with GIS technology.

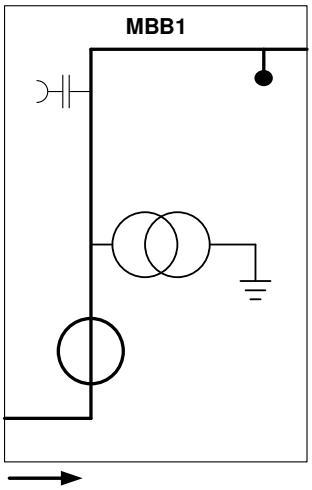
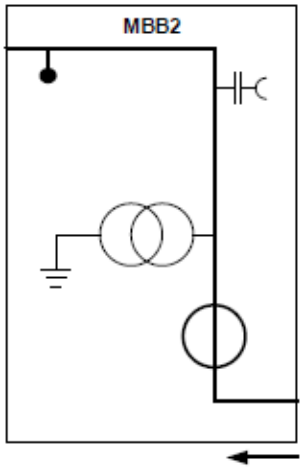
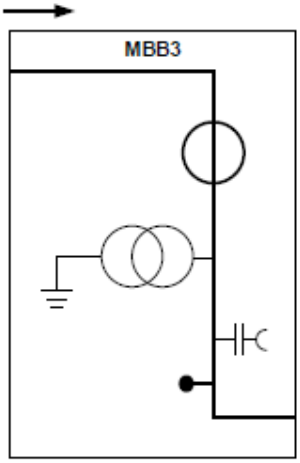
	DBT9 (no old code existing) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector earthing-switch upstream the circuit-breaker on the upper busbar side, and one VDS on the lower busbar side. The ratings, features, functionalities and design of this FU are identical to the ones of DBN9 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DKN10 (no old code existing) FU cable feeder with circuit-breaker, the circuit-breaker on the cable side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the cable side to the earth, and one VDS downstream the circuit-breaker on the cable side. 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 disconnector (or switch-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 with GIS technology.
	DKG10 (no old code existing) FU installation feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the cable side to the earth, and one VDS on the cable side. 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). This FU is only allowed with GIS technology.

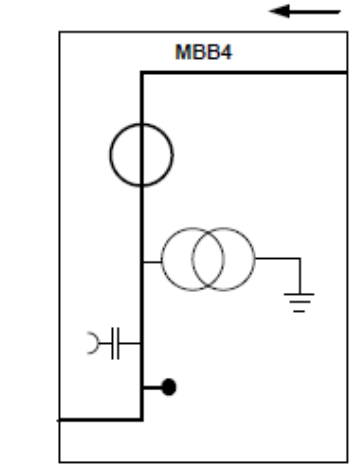
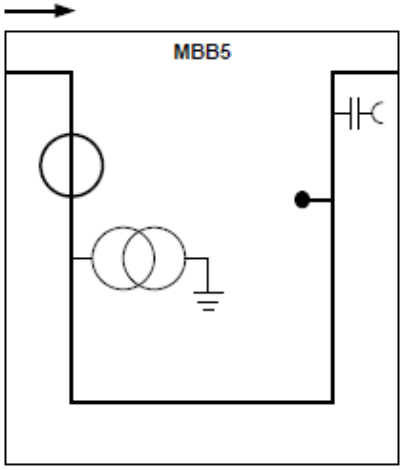
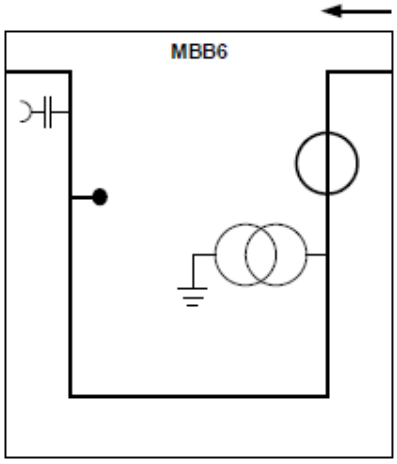
	DKT10 (no old code existing) FU transformer feeder with circuit-breaker, cable connection, the circuit-breaker on the cable side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the cable side to the earth, and one VDS on the cable side. The ratings, features, functionalities and design of this FU are identical to the ones of DKN10 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DBN10 (no old code existing) FU busbar feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the lower busbar side to the earth, and one VDS on the lower busbar side. 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 disconnector (or switch-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 with GIS technology.
	DBG10 (no old code existing) FU installation feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the lower busbar side to the earth, and one VDS on the lower busbar side. 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). This FU is only allowed with GIS technology.

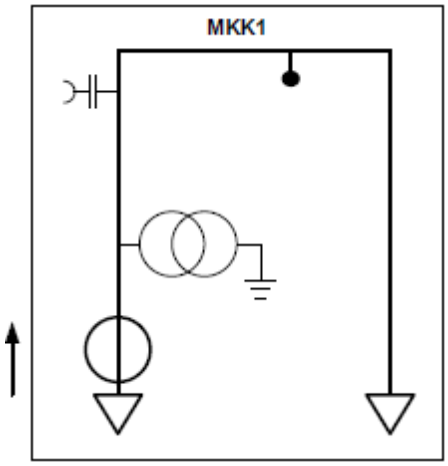
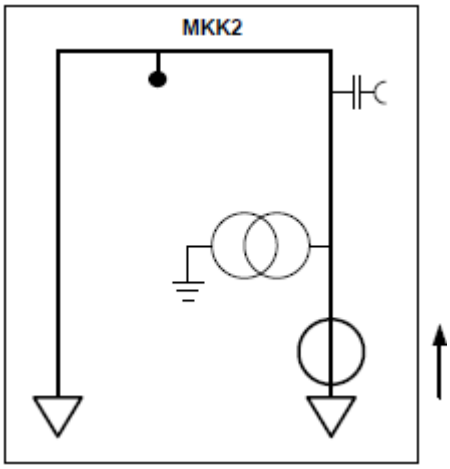
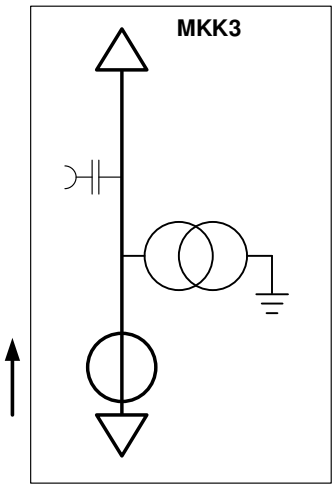
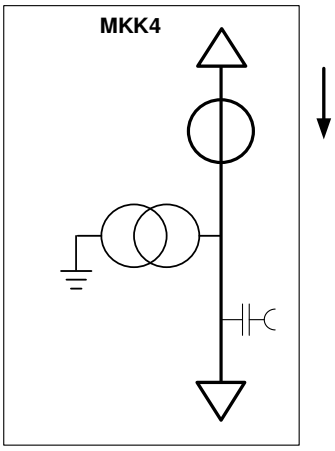
	DBT10 (no old code existing) FU transformer feeder with circuit-breaker, upper busbar section, lower busbar connection, the circuit-breaker on the lower busbar side, one 3-positions disconnector (or switch-disconnector) earthing-switch on the upper busbar side, the earthing-switch of the 3-positions switch connecting the circuit downstream the circuit-breaker on the lower busbar side to the earth, and one VDS on the lower busbar side. The ratings, features, functionalities and design of this FU are identical to the ones of DBN10 except that : • 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 interface can be different (see C2/113-4 § 5.1.2 or 5.3.3) This FU is only allowed with GIS technology.
	DwKN1 (old code DW1N1) FU cable feeder with withdrawable circuit-breaker, one earthing-switch and one VDS downstream the circuit-breaker on the cable side. The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from the upper busbar side and from the cable side. 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 racking-in operation of the disconnection truck is interlocked with the closed position of the earthing-switch and reversely. The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely. This FU is only allowed with AIS technology.
	DwBN1 (old code DW1BE) FU busbar feeder with withdrawable circuit-breaker, upper busbar section, lower busbar connection, one earthing-switch and one VDS downstream the circuit-breaker on the lower busbar side. The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from both main circuits on upper and lower busbar sides. 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 racking-in operation of the disconnection truck is interlocked with the closed position of the earthing-switch and reversely. The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely. This FU is only allowed with AIS technology.

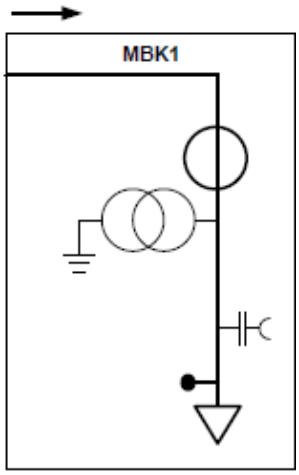
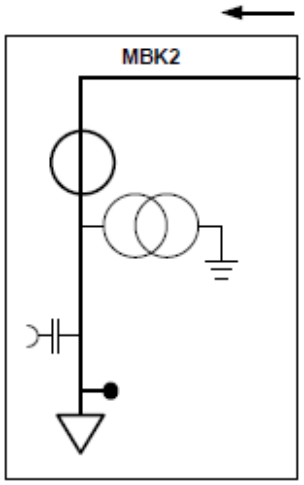
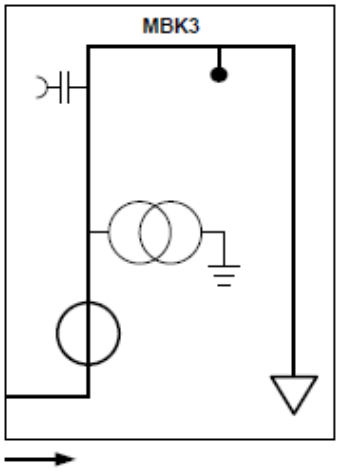
	DwBZ1 (old code DW1BZ) FU busbar feeder with withdrawable circuit-breaker, upper busbar section, lower busbar connection, one VDS downstream the circuit-breaker on the lower busbar side and without earthing-switch. The withdrawing operation of the circuit-breaker truck isolates the circuit-breaker from both main circuits on upper and lower busbar sides. The circuit-breaker operates according to the fast auto-reclosing sequence O-0.3s-CO-15s-CO. The operation of the disconnection truck is interlocked with the position of the circuit-breaker and reversely. This FU is only allowed with AIS technology and when a FU EBNx is connected to the lower busbar section downstream to allow its earthing.

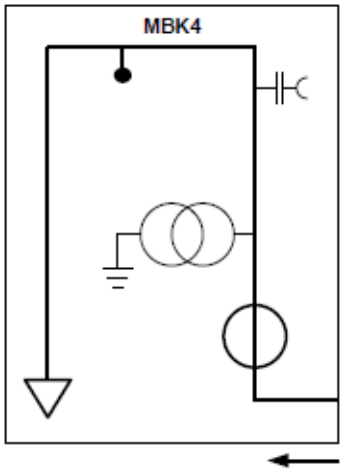
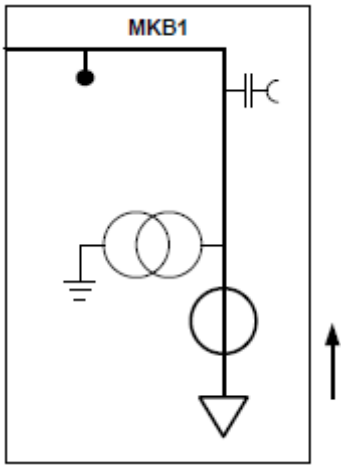
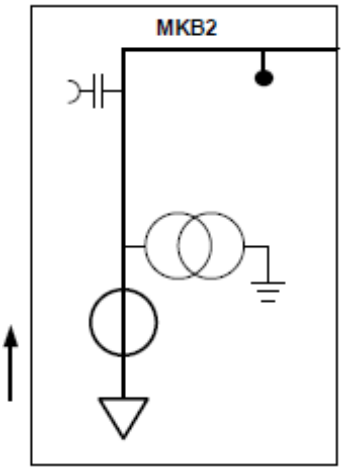
3.4 F.U. type M

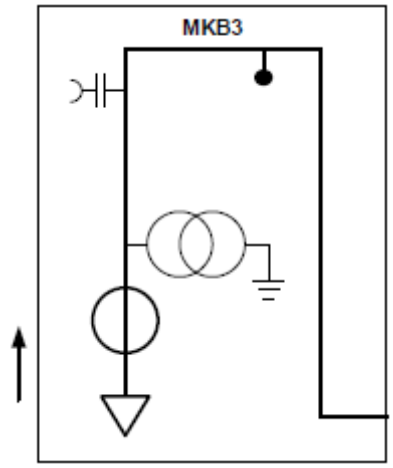
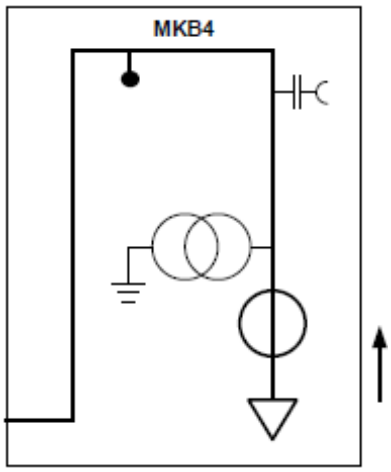
	MBB1 (old code M1) Metering FU for billing with busbar input at lower left side and busbar output at upper right side. 3 metering CTs with P1 connected to the lower left input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air insulated switchgear. 1 VDS.
	MBB2 (old code M1) Metering FU for billing with busbar input at lower right side and busbar output at upper left side. 3 metering CTs with P1 connected to the lower right input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air insulated switchgear. 1 VDS.
	MBB3 (old code M1) Metering FU for billing with busbar input at upper left side and busbar output at lower right side. 3 metering CTs with P1 connected to the upper left input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air insulated switchgear. 1 VDS.

	MBB4 (old code M1) Metering FU for billing with busbar input at upper right side and busbar output at lower left side. 3 metering CTs with P1 connected to the upper right input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air insulated switchgear. 1 VDS.
	MBB5 (old code M1) Metering FU for billing with busbar input at upper left side and busbar output at upper right side. 3 metering CTs with P1 connected to the upper left input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MBB6 (old code M1) Metering FU for billing with busbar input at upper right side and busbar output at upper left side. 3 metering CTs with P1 connected to the upper right input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.

	MKK1 (old code M2) Metering FU for billing with cable input at lower left or front side and cable output at lower right or rear side. 3 metering CTs with P1 connected to the lower left or front input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	Nouveau Code : MKK2 Metering FU for billing with cable input at lower right or rear side and cable output at lower left or front side. 3 metering CTs with P1 connected to the lower right or rear input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MKK3 (old code M2) Metering FU for billing with cable input at lower side and cable output at upper side. 3 metering CTs with P1 connected to the lower input cables side and 3 phase-to-earth metering VTs connected to P2 side. 1 VDS. This FU is only allowed with GIS technology.
	MKK4 (old code M2) Metering FU for billing with cable input at upper side and cable output at lower side. 3 metering CTs with P1 connected to the upper input cables side and 3 phase-to-earth metering VTs connected to P2 side. 1 VDS. This FU is only allowed with GIS technology.

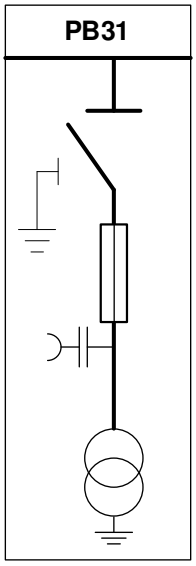
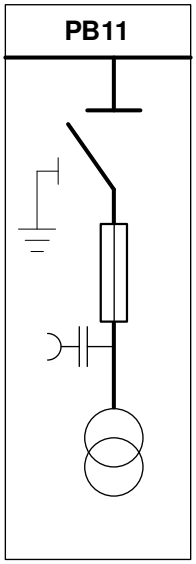
	MBK1 (old code M3) Metering FU for billing with busbar input at upper left side and cable output at lower side. 3 metering CTs with P1 connected to the upper left input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MBK2 (old code M3) Metering FU for billing with busbar input at upper right side and cable output at lower side. 3 metering CTs with P1 connected to the upper right input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure. only in case of air-insulated switchgear. 1 VDS.
	MBK3 (old code M3) Metering FU for billing with busbar input at lower left side and cable output at lower right side. 3 metering CTs with P1 connected to the lower left input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.

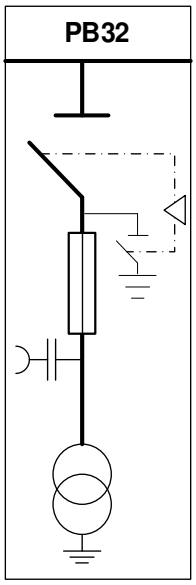
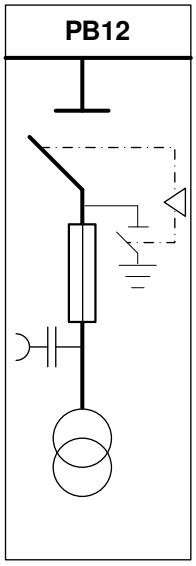
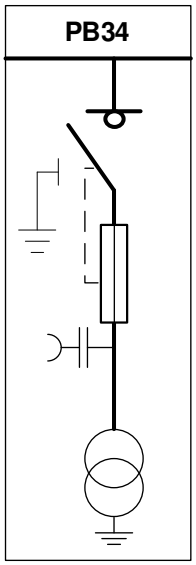
	MBK4 (old code M3) Metering FU for billing with busbar input at lower right side and cable output at lower left side. 3 metering CTs with P1 connected to the lower right input busbar side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MKB1 (old code M4) Metering FU for billing with cable input at lower side and busbar output at upper left side. 3 metering CTs with P1 connected to the lower input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MKB2 (old code M4) Metering FU for billing with cable input at lower side and busbar output at upper right side. 3 metering CTs with P1 connected to the lower input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.

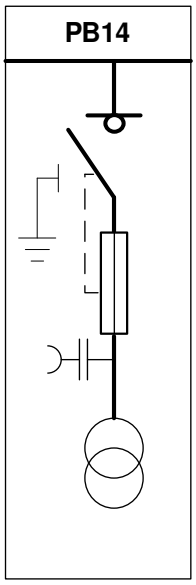
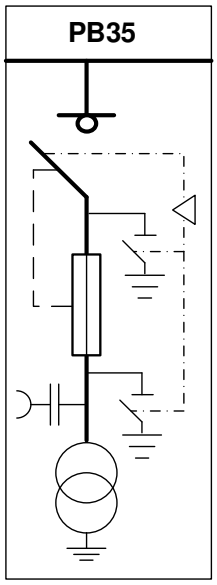
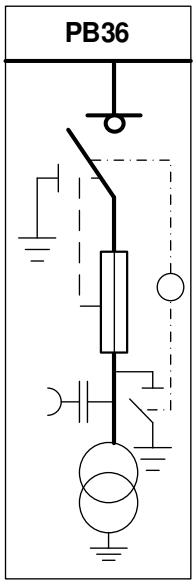
	MKB3 (old code M4) Metering FU for billing with cable input at lower left side and busbar output at lower right side. 3 metering CTs with P1 connected to the lower left input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.
	MKB4 (old code M4) Metering FU for billing with cable input at lower right side and busbar output at lower left side. 3 metering CTs with P1 connected to the lower right input cable side and 3 phase-to-earth metering VTs connected to P2 side. 3 spherical head earthing bolts in the phases on P2 side + 1 on the enclosure only in case of air-insulated switchgear. 1 VDS.

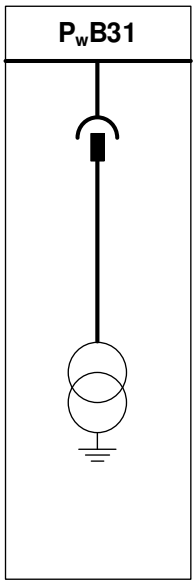
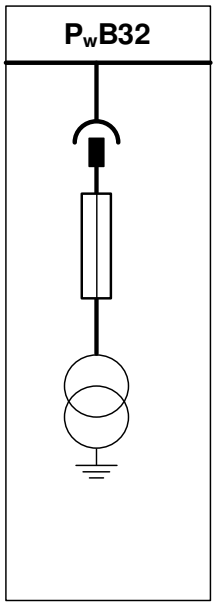
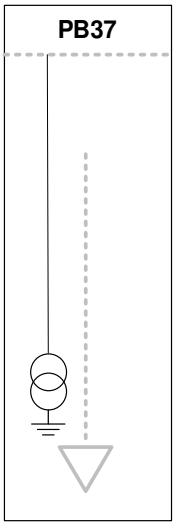
3.5 F.U. type P

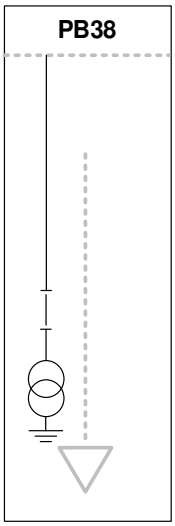
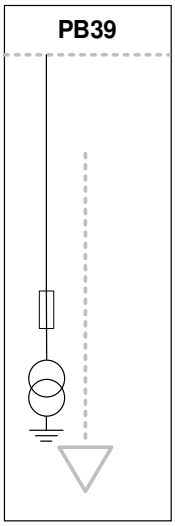
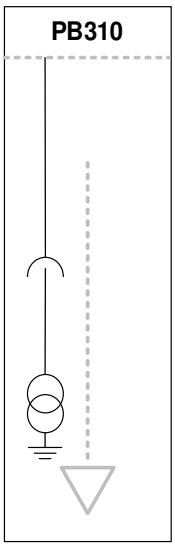
A voltage metering function P can be a stand-alone Functional Unit or a secondary function integrated in a functional unit with another main function.

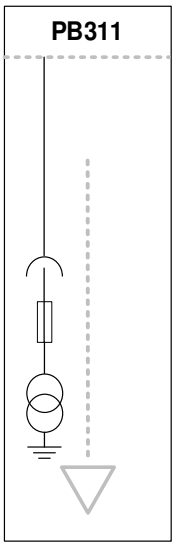
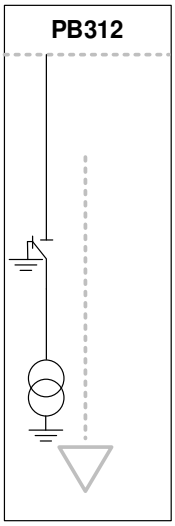
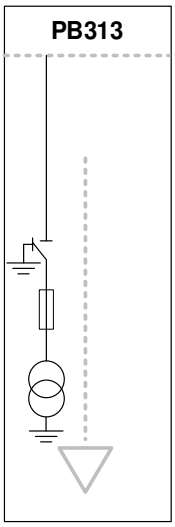
	PB31 (old code P13) FU busbar voltage metering with 3 fixed phase-to-earth metering voltage transformers protected by fuses, connected to the busbar through a 3-positions disconnector (or switch-disconnector) earthing-switch, and one VDS downstream the fuses. The earthing-switch has no short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is by design interlocked with the position of the earthing-switch and reversely.
	PB11 (old code P11) FU busbar voltage transformer with 1 fixed phase-to-phase voltage transformer protected by fuses, connected to the busbar through a 3-positions disconnector (or switch-disconnector) earthing-switch, and one VDS downstream the fuses 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 with AIS technology.

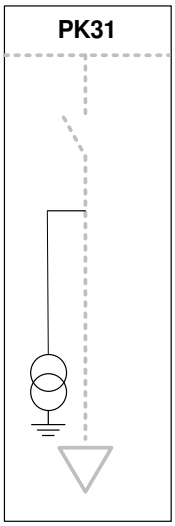
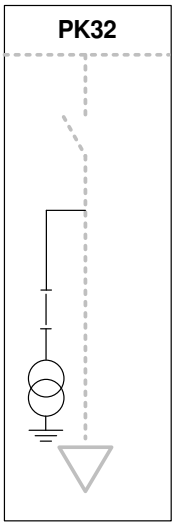
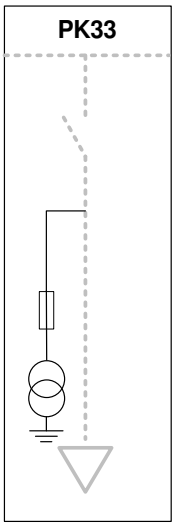
	PB32 (old code P23) FU busbar voltage metering with 3 fixed phase-to-earth metering voltage transformers protected by fuses, connected to the busbar through a 2-positions disconnector (or switch-disconnector), one earthing-switch upstream the fuses and one VDS downstream the fuses. The earthing-switch has no short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely. This FU is only allowed with AIS technology.
	PB12 (no old code existing) FU busbar voltage transformer with one fixed phase-to-phase voltage transformer protected by fuses, connected to the busbar through a 2-positions disconnector (or switch-disconnector), one earthing-switch upstream the fuses and one VDS downstream the fuses. The earthing-switch has no short-circuit making capacity. The closing operation of the disconnector (or switch-disconnector) is interlocked with the position of the earthing-switch and reversely. This FU is only allowed with AIS technology.
	PB34 (old code P43) FU busbar voltage metering with 3 fixed phase-to-earth metering voltage transformers, connected to the busbar through a 3-positions switch-disconnector-fuse combination and earthing-switch, and one VDS downstream the fuses. The earthing-switch has no short-circuit making capacity. The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely.

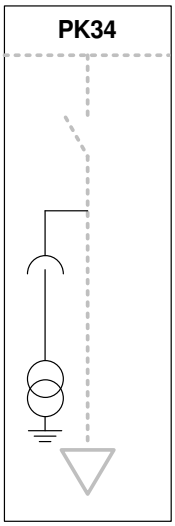
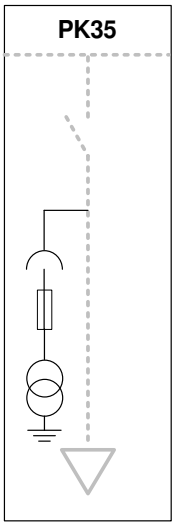
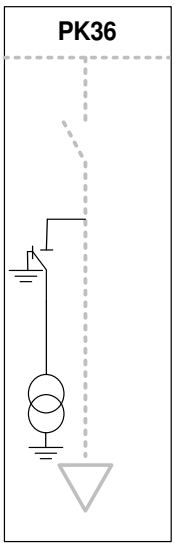
	PB14 (no old code existing) FU busbar voltage transformer with one fixed phase-to-phase voltage transformer, connected to the busbar through a 3-positions switch-disconnector-fuse combination and earthing-switch, and one VDS downstream the fuses. The earthing-switch has no short-circuit making capacity. The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed with AIS technology.
	PB35 (old code P53) FU busbar voltage metering with 3 fixed phase-to-earth metering voltage transformers, connected to the busbar through a 2-positions switch-disconnector-fuse combination, 2 earthing-switches, one upstream the fuses and one downstream the fuses, and one VDS downstream the fuses. Both earthing-switches are operated together by one common mechanism. Both earthing-switches have no short-circuit making capacity. The closing operation of the switch-disconnector is interlocked with the position of the earthing-switches and reversely. This FU is only allowed with AIS technology.
	PB36 (no old code existing) FU busbar voltage metering with 3 fixed phase-to-earth metering voltage transformers, connected to the busbar through a 3-positions switch-disconnector-fuse combination and earthing-switch upstream the fuses, one second earthing-switch and one VDS downstream the fuses. Both earthing-switches are operated together by one common mechanism. Both earthing-switches have no short-circuit making capacity. The closing operation of the switch-disconnector is by design interlocked with the position of the earthing-switches and reversely.

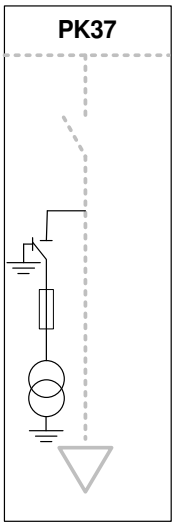
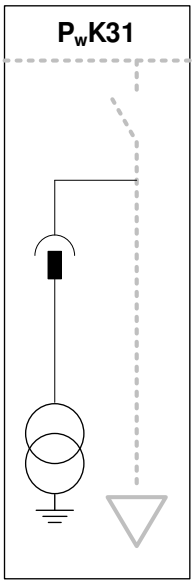
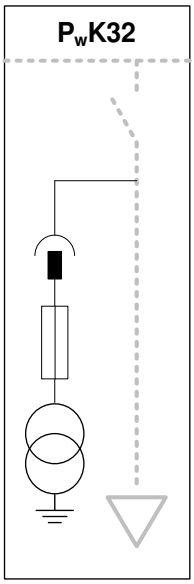
	PwB31 (no old code existing) FU busbar voltage metering with a withdrawable truck connecting 3 phase to earth metering voltage transformers to the main busbar. This function has a specific compartment for the withdrawable truck and the VTs. The withdrawable truck allows connection / disconnection of the VTs to / from the main busbar under voltage. This FU is only allowed with AIS technology. It can also be a secondary function in/on a FU with another type of main function.
	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 busbar. This function has a specific compartment for the withdrawable truck, the fuses and the VTs. The withdrawable truck allows connection / disconnection of the VTs to / from the main busbar under voltage. This FU is only allowed with AIS technology. It can also be a secondary function in/on a FU with another type of main function.
	PB37 (no old code existing) Function busbar voltage metering with 3 phase to earth metering voltage transformers connected to the busbar by the mean 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 technology. It is only allowed downstream the general protection to prevent prolonged busbar outage in case of issue inside a voltage transformer.

	PB38 (no old code existing) Function busbar voltage metering with 3 disconnectable phase to earth metering voltage transformers connected to the busbar by the mean of conductors manually removable when the voltage is switched-off and the busbar earthed. 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 technology.
	PB39 (no old code existing) Function busbar voltage metering with 3 disconnectable phase to earth metering voltage transformers protected by fuses and connected to the busbar by the mean of fuses manually removable when the voltage is switched-off and the busbar earthed. 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 technology.
	PB310 (no old code existing) Function busbar voltage metering with 3 phase to earth metering voltage transformers plugged to the busbar. The metering voltage transformers are individually enclosed in an earthed metal-enclosure. 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 the mean of an additional metal enclosure if necessary. It is only allowed in GIS technology. It is only allowed downstream the general protection to prevent prolonged busbar outage in case of issue inside a voltage transformer.

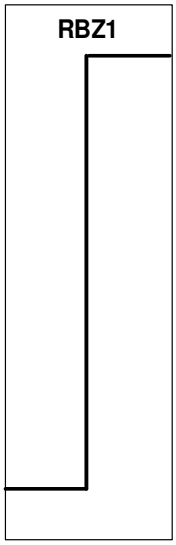
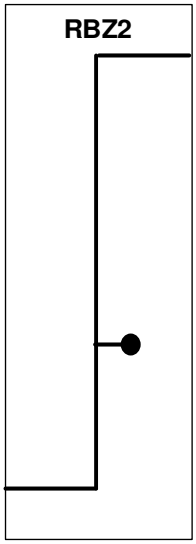
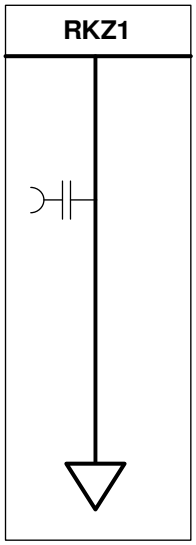
	PB311 (no old code existing) Function busbar voltage metering with 3 phase to earth metering voltage transformers protected by fuses and plugged to the busbar. This function may only exist as a secondary function in/on a FU with another type of main function. If it is placed over another FU, the protection degree IP2X-D shall be ensured, eventually by the mean of an additional metal enclosure if necessary. It is only allowed in GIS technology.
	PB312 (no old code existing) Function busbar voltage metering with 3 phase to earth metering voltage transformers connected to the upper busbar by the mean of a 2-positions disconnector earthing-switch. The metering voltage transformers are in the cables compartment. The 2-positions disconnector earthing-switch is 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. The metering voltage 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 technology.
	PB313 (no old code existing) Function busbar voltage metering with 3 phase to earth metering voltage transformers protected by fuses and connected to the upper busbar by the mean of a 2-positions disconnector earthing-switch. The metering voltage transformers are in the cables compartment. The 2-positions disconnector earthing-switch is 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. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed in GIS technology.

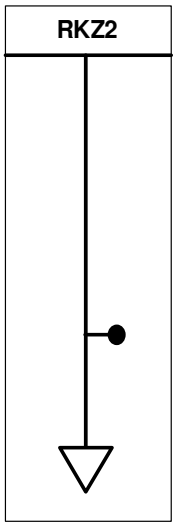
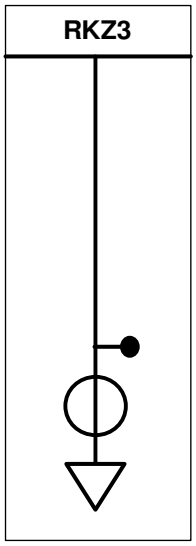
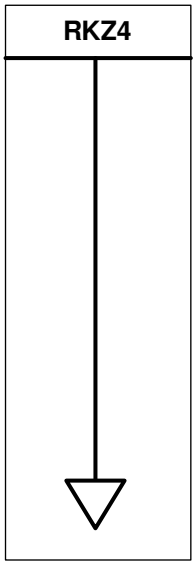
	PK31 (no old code existing) Function cable voltage metering with 3 phase to earth metering voltage transformers connected to the main circuit on the cable side by the mean of bolted connections. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed with AIS technology. It is not allowed in FUs KKNx or DKNx but only in customer's substation downstream the general protection.
	PK32 (no old code existing) Function cable voltage metering with 3 disconnectable phase to earth metering voltage transformers connected to the main circuit on the cable side by the mean of conductors manually removable when the voltage is switched-off and the circuit on the cable side earthed. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed with AIS technology.
	PK33 (no old code existing) Function cable voltage metering with 3 disconnectable phase to earth metering voltage transformers protected and connected to the main circuit on the cable side by the mean of fuses manually removable when the voltage is switched-off and the circuit on the cable side earthed. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed with AIS technology.

	PK34 (no old code existing) Function cable voltage metering with 3 phase to earth metering voltage transformers plugged to the main circuit on the cable side. The metering voltage 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 with GIS technology. It is not allowed in FUs KKNx or DKNx but only in customer's substation downstream the general protection.
	PK35 (no old code existing) Function cable voltage metering with 3 phase to earth metering voltage transformers protected by fuses and plugged to the main circuit on the cable side. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed with GIS technology. It is not allowed in FUs KKNx or DKNx but only in customer's substation downstream the general protection.
	PK36 (no old code existing) Function cable voltage metering with 3 phase to earth metering voltage transformers connected to the main circuit on the cable side by the mean of a 2-positions disconnector earthing-switch. The 2-positions disconnector earthing-switch is 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. The metering voltage 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 with GIS technology.

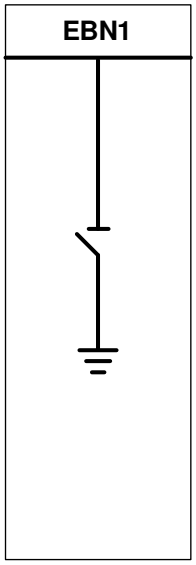
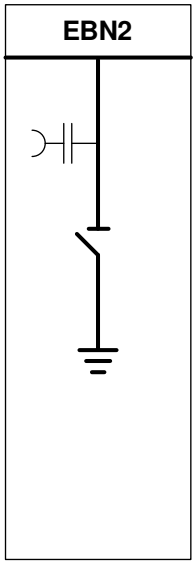
	PK37 (no old code existing) Function cable voltage metering with 3 phase to earth metering voltage transformers protected by fuses and connected to the main circuit on the cable side by the mean of a 2-positions disconnector earthing-switch. The 2-positions disconnector earthing-switch is in the gas tank and can only be operated from inside the cables compartment, i.e. when voltage is switched-off and cable side is earthed. This function may only exist as a secondary function in a FU with another type of main function. It is only allowed with GIS technology.
	PwK31 (no old code existing) Function cable voltage metering 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 and the metering voltage 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 with AIS technology.
	PwK32 (no old code existing) Function cable voltage metering with a withdrawable truck connecting 3 phase to earth metering voltage transformers protected by fuses to the main circuit on the cable side. This function has a specific compartment for a withdrawable truck, the fuses and the metering voltage 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 with AIS technology.

3.6 F.U. type R

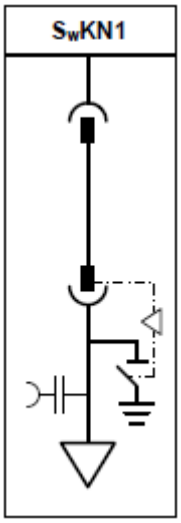
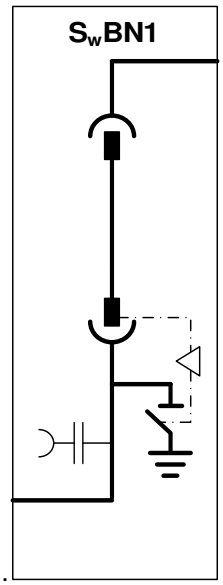
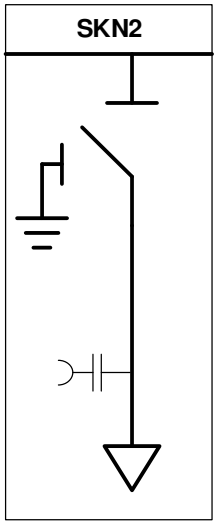
	RBZ1 (old code RB12) FU busbar riser with upper busbar section. This FU stand alone is only allowed with GIS technology. It is also allowed with AIS technology in combination with a function/FU allowing earthing of the accessible circuit. In customer's substations, this FU is only allowed downstream the general protection.
	RBZ2 (old code RB1) FU busbar riser with upper busbar section and with spherical head earthing bolts in the 3 phases and on the enclosure. This FU is only allowed with AIS technology. In customer's substations, this FU is only allowed downstream the general protection.
	RKZ1 (old code RB22 + VDS) FU cable riser with VDS. This FU stand alone is allowed • either with GIS technology • or with AIS technology only in combination with a function allowing earthing of the accessible. In customer's substations, this FU is only allowed downstream the general protection.

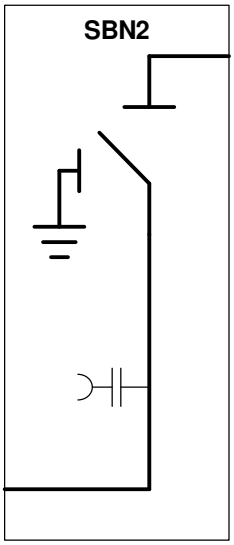
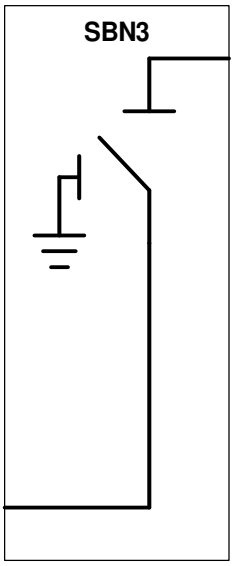
	RKZ2 (old code RB2) FU cable riser with spherical head earthing bolts in the 3 phases and on the enclosure to allow connection of external voltage detecting system or earthing device. This FU is only allowed with AIS technology. In customer's substations, this FU is only allowed downstream the general protection.
	RKZ3 (old code RBM2) FU cable riser with spherical head earthing bolts in the 3 phases and on the enclosure and current transformers in the 3 phases. This FU is only allowed with AIS technology. In customer's substations, this FU is only allowed downstream the general protection.
	RKZ4 (old code RB22) FU cable riser (without VDS). This FU stand alone is allowed • either with GIS technology • or with AIS technology only in combination with a function allowing earthing of the accessible. In customer's substations, this FU is only allowed downstream the general protection.

3.7 F.U. type E

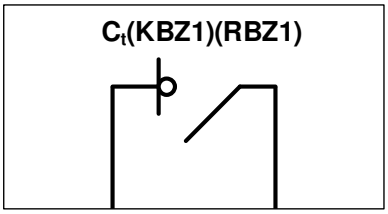
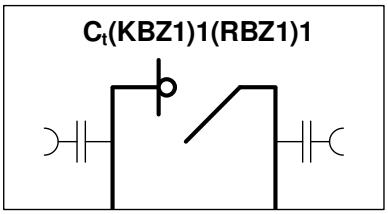
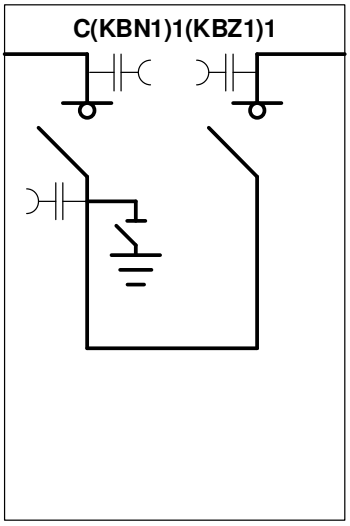
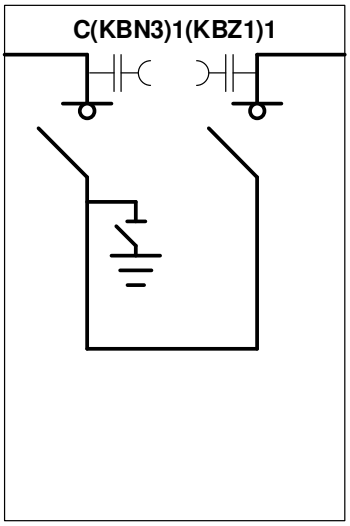
	EBN1 (old code BB1E) FU busbar earthing-switch. The earthing-switch has the full short-circuit-making capacity. The manual closing operation of the earthing-switch is fitted with a blocking magnet. It can also be a secondary function in/on a FU with another type of main function. In customer's substations, this FU is only allowed downstream the general protection.
	EBN2 FU busbar earthing-switch with VDS 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's substations, this FU is only allowed downstream the general protection

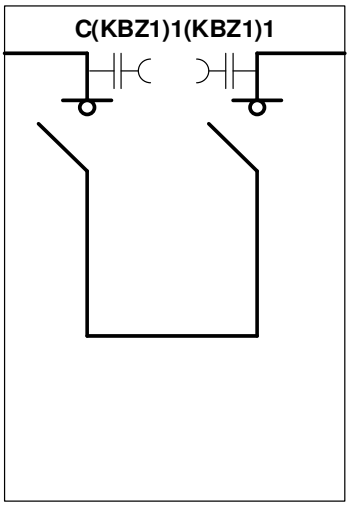
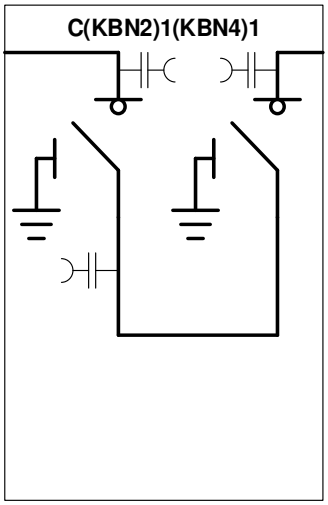
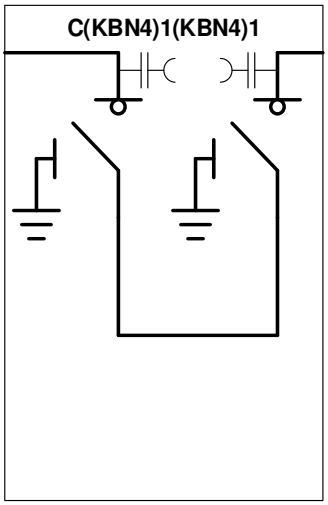
3.8 F.U. type S

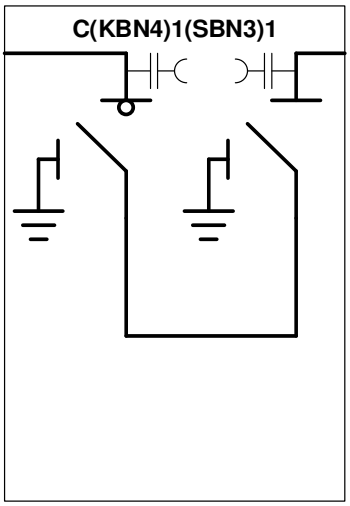
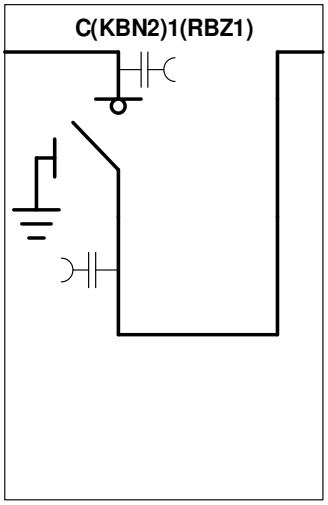
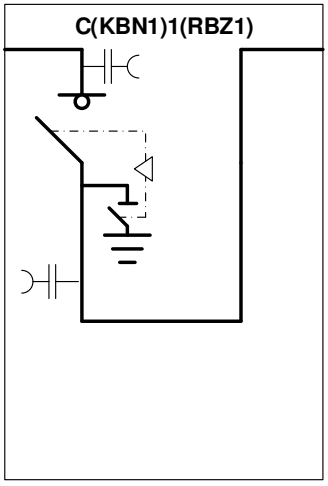
	SwKN1 (old code not existing) FU cable feeder with one withdrawable truck ensuring the disconnecting function, one earthing-switch and one VDS on the cable side. The earthing-switch has the full short-circuit making capacity. The racking-in operation of the disconnector is interlocked with the position of the earthing-switch and reversely. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substations, it is only allowed downstream the general protection.
	SwBN1 (old code not existing) Function busbar feeder with upper busbar section, one withdrawable truck ensuring the disconnecting function, one earthing-switch and one VDS on the lower busbar side. 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 with AIS switchgear with Ir ≥ 1250A. This function is only allowed as part of a FU C. In customer's substations, it is only allowed downstream the general protection.
	SKN2 (old code not existing) FU cable feeder with one 3-positions disconnector and earthing-switch and one VDS on the cable side. 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 with GIS switchgear with Ir ≥ 1250A. In customer's substations, it is only allowed downstream the general protection.

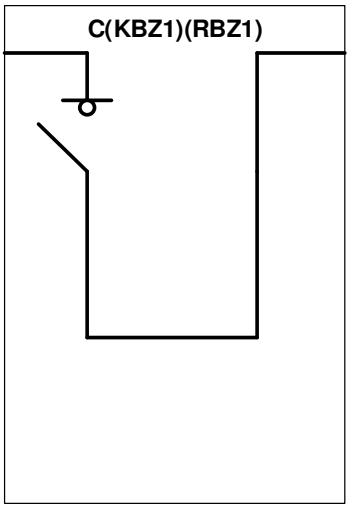
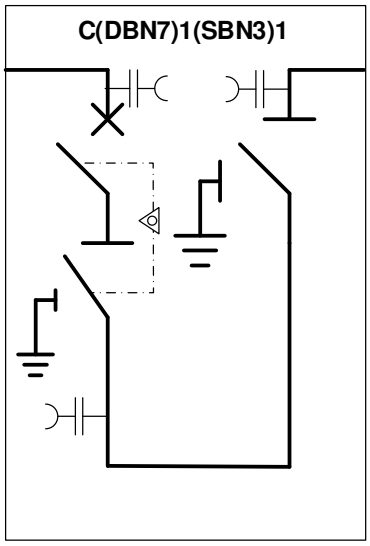
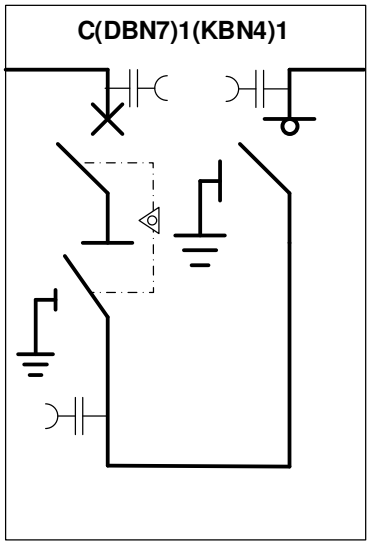
	SBN2 (old code not existing) FU busbar feeder with upper busbar section, one 3-positions disconnector and earthing-switch and one VDS on the lower busbar side. The earthing-switch has the full short-circuit making capacity. The closing operation of the disconnector is by design interlocked with the position of the earthing-switch and reversely. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. This FU is only allowed as part of a FU C. In customer's substations, it is only allowed downstream the general protection.
	SBN3 (old code not existing) FU busbar feeder with upper busbar section, one 3-positions disconnector and earthing-switch on the lower busbar side, without VDS on the lower busbar side. 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 with GIS switchgear with Ir ≥ 1250A. This FU is only allowed as part of a FU C. In customer's substations, it is only allowed downstream the general protection.

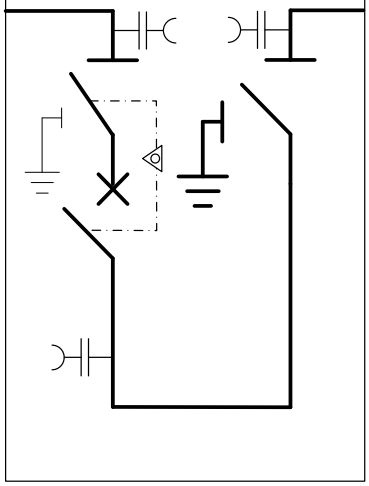
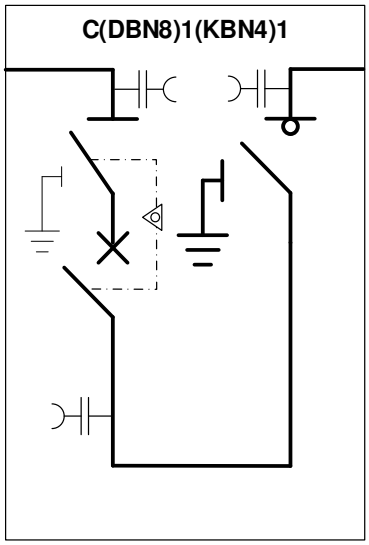
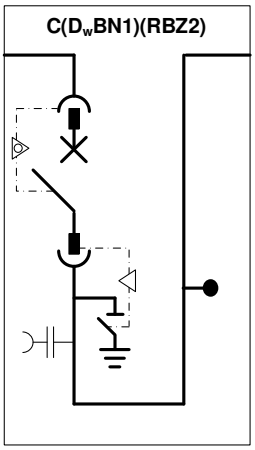
3.9 Coupling FUs

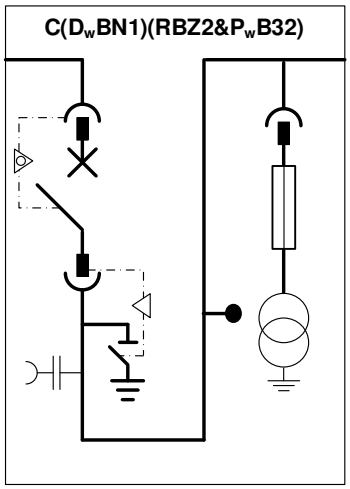
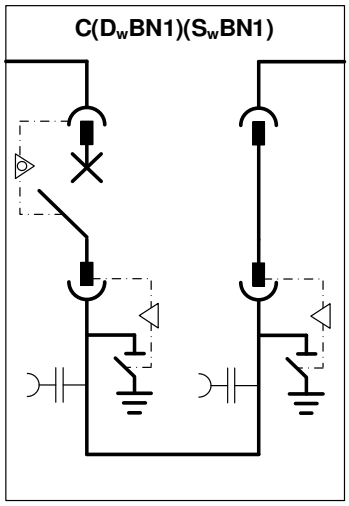
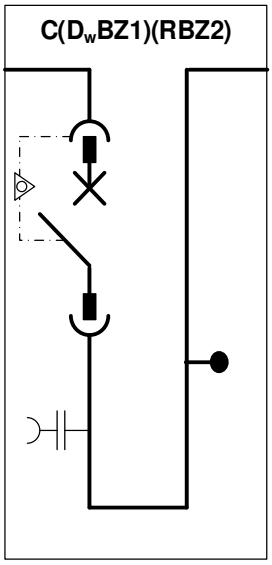
	Ct(KBZ1)(RBZ1) (old code K1BZ) FU busbar coupler with 2 bottom connections to both busbar sections it can connect and one 2-positions switch-disconnector, without earthing-switch nor VDS, to be installed on top of 2 FUs connected to 2 different and partitioned busbar sections. This FU has a partition between both busbar sections it includes. This FU is only allowed in AIS technology. This FU is not allowed in customer's substations.
	Ct(KBZ1)1(RBZ1)1 (old code K1BZ2) FU busbar coupler with 2 bottom connections to both busbar sections it can connect, one 2-positions switch-disconnector and 2 VDS, one on every busbar, without earthing-switch, 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 technology. This FU is not allowed in customer's substations.
	C(KBN1)1(KBZ1)1 (old code K5BE2) FU busbar coupler with double sectionalizing, one constituent according to KBN1, the other constituent according to KBZ1, and one VDS on every connected busbar. The earthing-switch on the intermediate busbar is used to earth one of the connected busbars or the other. There is no interlock between the earthing-switch and the switch-disconnectors, except for the motorized operation of the switch-disconnectors, to allow earthing of any busbar with the earthing-switch. Interlocks are described in C2/113-4. This FU has partitions between the different busbar sections it includes. This FU is only allowed with AIS switchgear with Ir ≥ 800 A. This FU is not allowed in customer's substations.
	C(KBN3)1(KBZ1)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to KBN3, the other constituent according to KBZ1, and one VDS on every connected busbar. This FU is identical to the FU C(KBN1)1(KBZ1)1, except that there is no VDS on the intermediate busbar. This FU is only allowed with AIS switchgear with Ir ≥ 800 A. This FU is not allowed in customer's substations.

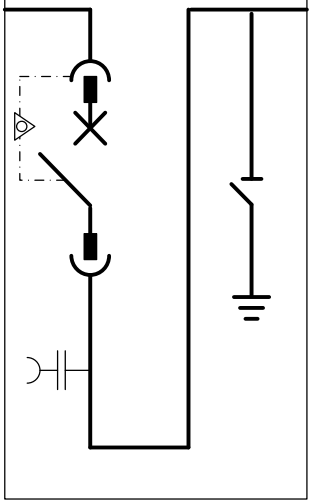
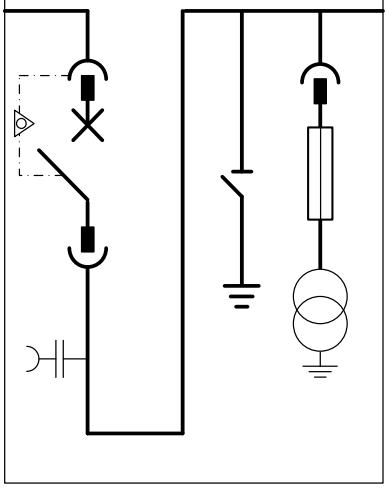
	C(KBZ1)1(KBZ1)1 (no old code existing) FU busbar coupler with double sectionalizing, both constituents according to KBZ1, and one VDS on every connected busbar. This FU is identical to the FU C(KBN1)(KBZ1)2, except that there is neither earthing-switch nor VDS on the intermediate busbar. In customer's substation, this FU is only allowed downstream the general protection.
	C(KBN2)1(KBN4)1 (old code K6BE2) FU busbar coupler with double sectionalizing, one constituent according to KBN2, the other constituent according to KBN4, and one VDS on every connected busbar. The earthing-switches on the intermediate busbar are used to earth the opposite connected busbar. There are no crossed interlocks between the earthing-switches and their opposite switch-disconnector, except for the motorized operation of the switch-disconnectors, to allow earthing of one busbar with the opposite earthing-switch. Interlocks are described in C2/113-4. This FU has partitions between the different busbar sections it includes. This FU is only allowed with AIS switchgear with Ir ≥ 800 A or with GIS switchgear with Ir ≥ 1250 A. This FU is not allowed in customer's substations.
	C(KBN4)1(KBN4)1 (no old code existing) FU busbar coupler with double sectionalizing, both constituent according to KBN4, and one VDS on every connected busbar. This FU is identical to C(KBN2)1(KBN4)1, except that there is no VDS on the intermediate busbar. This FU is only allowed with AIS switchgear with Ir ≥ 800 A or with GIS switchgear with Ir ≥ 1250 A. This FU is not allowed in customer's substations.

	C(KBN4)1(SBN3)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to KBN4, the other constituent according to SBN3, and one VDS on every connected busbar. This FU is identical to C(KBN2)1(KBN4)1, except that there is no VDS on the intermediate busbar and that the switch-disconnector is replaced by a disconnector in one constituent function. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. This FU is not allowed in customer's substations.
	C(KBN2)1(RBZ1) (old code K7BE2) FU busbar coupler with single sectionalizing, one constituent according to KBN2, the other constituent according to RBZ1, and one VDS on the busbar connected to the constituent KBN2. The earthing-switch in constituent function KBN2 is used to earth the busbar connected to constituent RBZ1. This FU has partitions between the different busbar sections it includes. This FU is allowed with AIS and GIS switchgear for every Ir ≥ 630 A. In customer's substation, this FU is only allowed downstream the general protection.
	C(KBN1)1(RBZ1) (old code K8BE2) FU busbar coupler with single sectionalizing, one constituent according to KBN1, the other constituent according to RBZ1, and one VDS on the busbar connected to the constituent KBN1. The earthing-switch in constituent function KBN1 is used to earth the busbar connected to constituent RBZ1. This FU has partitions between the different busbar sections it includes. This FU is only allowed with AIS switchgear. In customer's substation, this FU is only allowed downstream the general protection.

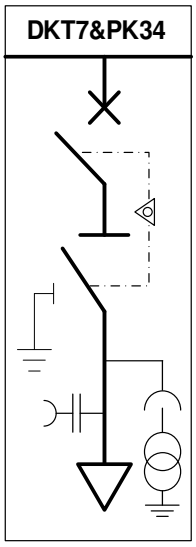
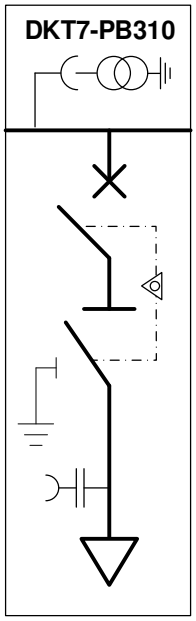
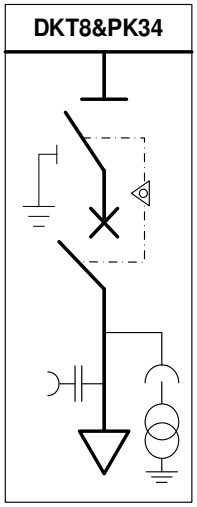
C(KBZ1)(RBZ1) 	C(KBZ1)(RBZ1) (old code K8BZ0) FU busbar coupler with single sectionalizing, one constituent according to KBZ1, the other constituent according to RBZ1, no VDS and no earthing-switch. This FU is only allowed with GIS technology.
C(DBN7)1(SBN3)1 	C(DBN7)1(SBN3)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to DBN7, the other constituent according to SBN3, and one VDS on every connected busbar. This FU is available with or without VDS on the intermediate busbar. Without VDS on the intermediate busbar, there is only one gas vessel. With VDS on the intermediate busbar, there are 2 gas vessels linked by an isolated screened intermediate busbar in air plugged on bushings. The earthing-switches on the intermediate busbar are used to earth the opposite connected busbar. There are no crossed interlocks between the earthing-switches and their opposite disconnector to allow earthing of one busbar with the opposite earthing-switch. This FU has partitions between the different busbar sections it includes. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. In customer's substations, this FU is only allowed downstream the general protection.
C(DBN7)1(KBN4)1 	C(DBN7)1(KBN4)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to DBN7, the other constituent according to KBN4, and one VDS on every connected busbar. This FU is identical to FU C(DBN7)1(SBN3)1 except that the disconnector in the second constituent FU is replaced by a switch-disconnector. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. In customer's substations, this FU is only allowed downstream the general protection

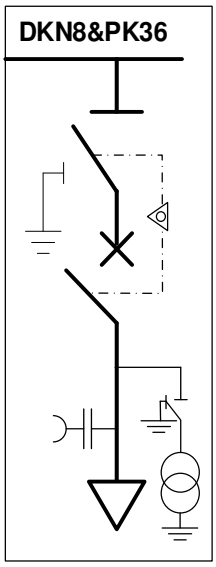
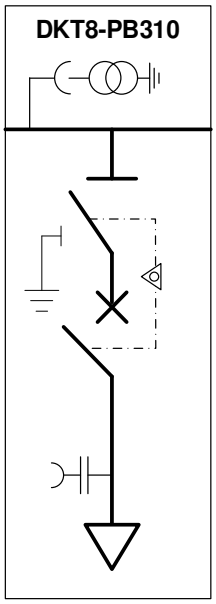
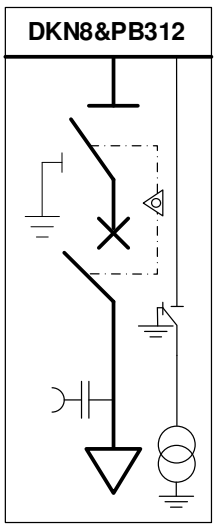
C(DBN8)1(SBN3)1 	C(DBN8)1(SBN3)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to DBN8, the other constituent according to SBN3, and one VDS on every connected busbar. This FU is available with or without VDS on the intermediate busbar. Without VDS on the intermediate busbar, there is only one gas vessel. With VDS on the intermediate busbar, there are 2 gas vessels linked by an isolated screened intermediate busbar in air plugged on bushings. The earthing-switches on the intermediate busbar are used to earth the opposite connected busbar. There are no crossed interlocks between the earthing-switches and their opposite disconnector to allow earthing of one busbar with the opposite earthing-switch. This FU has partitions between the different busbar sections it includes. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. In customer's substations, this FU is only allowed downstream the general protection.
C(DBN8)1(KBN4)1 	C(DBN8)1(KBN4)1 (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to DBN8, the other constituent according to KBN4, and one VDS on every connected busbar. This FU is identical to FU C(DBN8)1(SBN3)1 except that the disconnector in the second constituent FU is replaced by a switch-disconnector. This FU is only allowed with GIS switchgear with Ir ≥ 1250A. In customer's substations, this FU is only allowed downstream the general protection
C(D_wBN1)(RBZ2) 	C(DwBN1)(RBZ2) (no old code existing) FU busbar coupler with single sectionalizing, one constituent according to DwBN1, the other constituent according to RBZ2, and no VDS on the busbar connected to the constituent DwBN1. The earthing-switch in constituent function DwBN1 is used to earth the busbar connected to constituent RBZ2. This FU has partitions between the different busbar sections it includes. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substation, this FU is only allowed downstream the general protection.

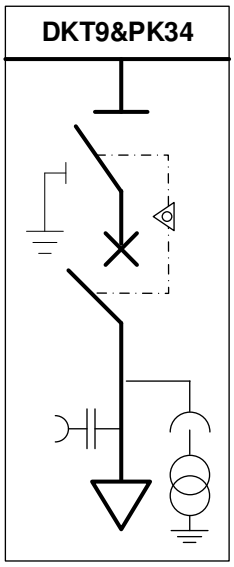
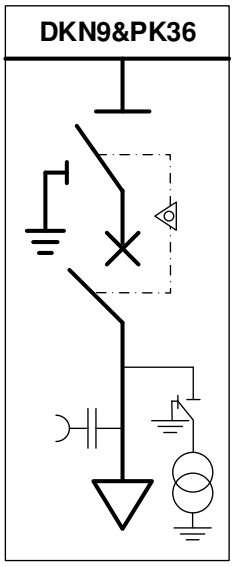
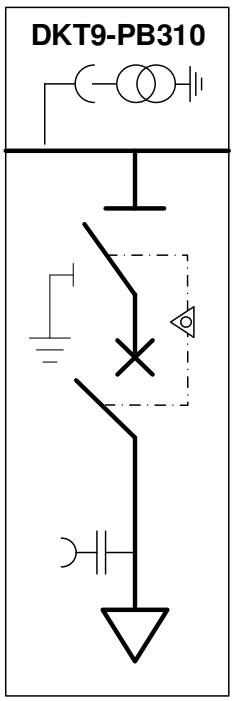
C(D_wBN1)(RBZ2&P_wB32) 	C(DwBN1)(RBZ2&PwB32) (no old code existing) FU busbar coupler with single sectionalizing, one constituent according to DwBN1, the other constituent according to RBZ2 & PwB32, and no VDS on the busbar connected to the constituent DwBN1. This FU is identical to FU C(DwBN1)(RBZ2) except that it has a withdrawable truck with fuse protected VTs for busbar voltage measurement in the riser constituent function RBZ2. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substation, this FU is only allowed downstream the general protection.
C(D_wBN1)(S_wBN1) 	C(DwBN1)(SwBN1) (no old code existing) FU busbar coupler with double sectionalizing, one constituent according to DwBN1, the other constituent according to SwBN1, and no VDS on any connected busbar. The earthing-switches on the intermediate busbar are used to earth the opposite connected busbar. There are no crossed interlocks between the earthing-switches and their opposite withdrawable truck to allow earthing of one busbar with the opposite earthing-switch. 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 with AIS switchgear with Ir ≥ 1250A. In customer's substations, this FU is only allowed downstream the general protection.
C(D_wBZ1)(RBZ2) 	C(DwBZ1)(RBZ2) (no old code existing) FU busbar coupler with single sectionalizing, one constituent according to DwBZ1, the other constituent according to RBZ2, and no VDS on the busbar connected to the constituent DwBZ1. This FU is identical to FU C(DwBN1)(RBZ2) except that it has no earthing switch in constituent function DwBZ1 and thus no possibility to earth the busbar connected to constituent RBZ2. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substation, this FU is only allowed downstream the general protection.

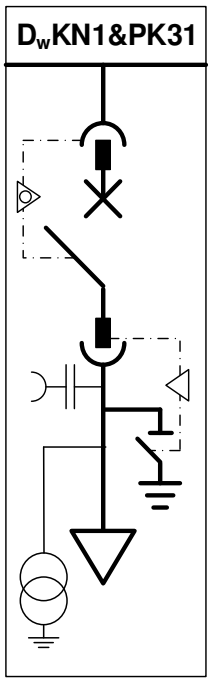
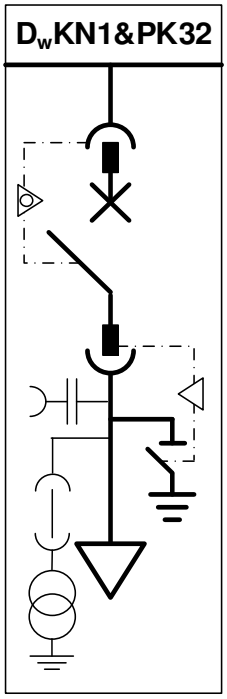
C(D_wBZ1)(RBZ1&EBN1) 	C(DwBZ1)(RBZ1&EBN1) (no old code existing) FU busbar coupler with single sectionalizing, one constituent according to DwBZ1, the other constituent according to RBZ1 & EBN1, and no VDS on the busbar connected to the constituent DwBZ1. This FU is identical to FU C(DwBN1)(RBZ2) except that the earthing-switch used to earth the busbar connected to constituent function riser is in this constituent function RBZ1 rather than in constituent function DwBZ1 and that there is no spherical head earthing bolts in constituent function RBZ1. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substation, this FU is only allowed downstream the general protection.
C(D_wBZ1)(RBZ1&EBN1&P_wB32) 	C(DwBZ1)(RBZ1&EBN1&PwB32) (no old code existing) FU busbar coupler with single sectionalizing, one constituent according to DwBZ1, the other constituent according to RBZ1 & EBN1 & PwB32, and no VDS on the busbar connected to the constituent DwBZ1. This FU is identical to FU C(DwBN1)(RBZ2) except that the earthing-switch used to earth the busbar connected to constituent function riser is in this constituent function RBZ1 rather than in constituent function DwBZ1, that there is no spherical head earthing bolts in constituent function RBZ1 and that there is a withdrawable truck with fuse protected VTs for busbar voltage measurement in the riser constituent function RBZ1. This FU is only allowed with AIS switchgear with Ir ≥ 1250A. In customer's substation, this FU is only allowed downstream the general protection.

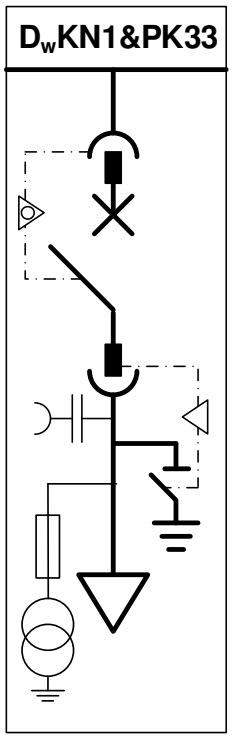
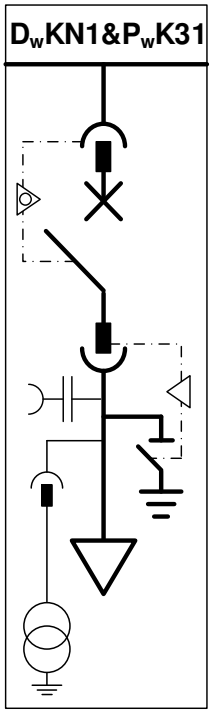
3.10 Combinations of FUs

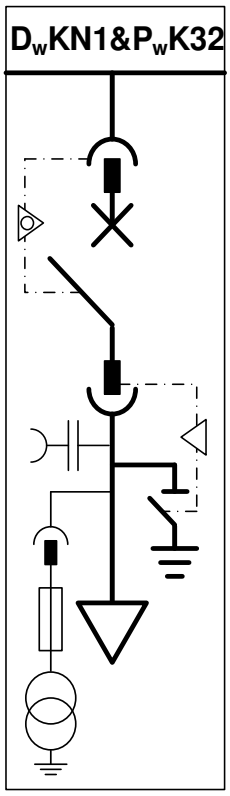
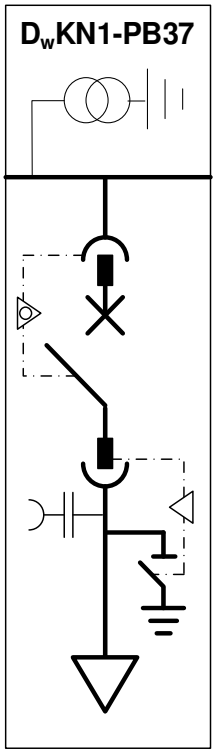
	DKT7&PK34 Combination only allowed downstream the general protection.
	DKT7-PB310 Combination only allowed downstream the general protection.
	DKT8&PK34 Combination only allowed downstream the general protection.

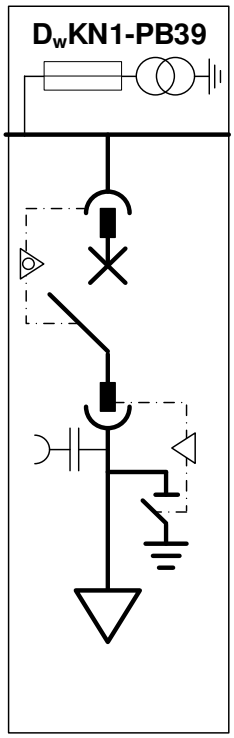
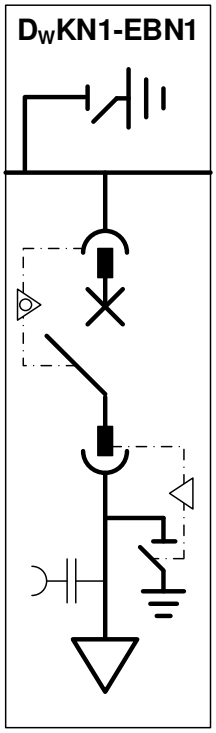
	DKN8&PK36
	DKT8-PB310 Combination only allowed downstream the general protection.
	DKN8&PB312

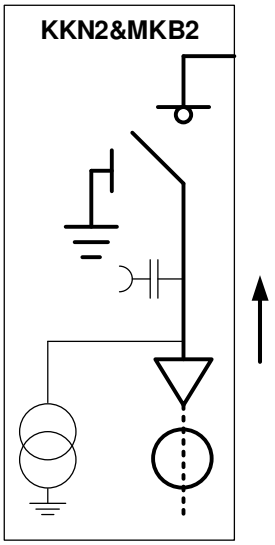
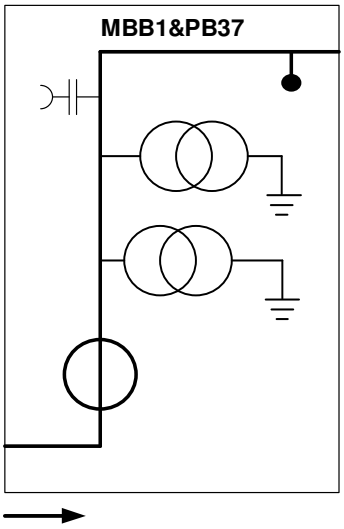
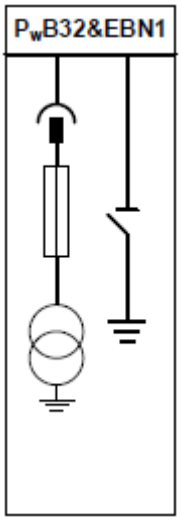
	DKT9&PK34 (no old code existing) Combination only allowed downstream the general protection.
	DKN9&PK36 (no old code existing)
	DKT9-PB310 Combination only allowed downstream the general protection.

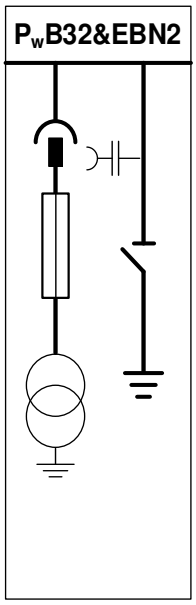
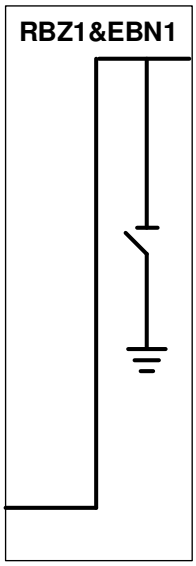
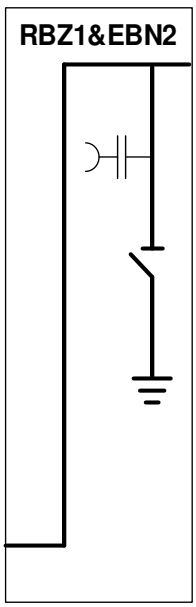
	DwKN1&PK31 (old code DW1N2) Combination only allowed downstream the general protection.
	DwKN1&PK32 (old code Dw1N2 + VTs disconnecting conductors)

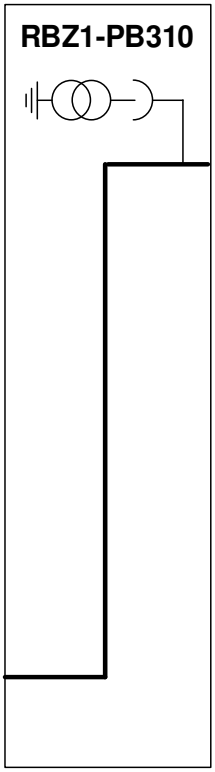
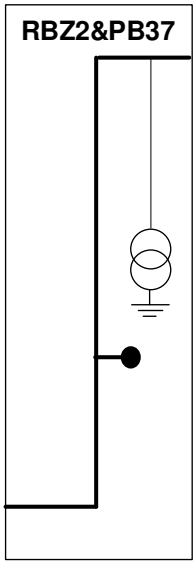
	DwKN1&PK33 (old code Dw1N2 + VTs disconnecting fuses)
	DwKN1&PwK31 (old code Dw1N2 + withdrawable VTs)

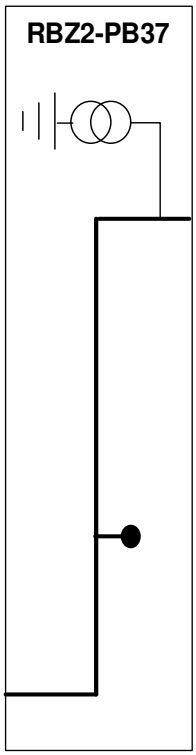
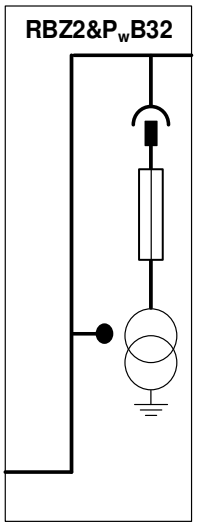
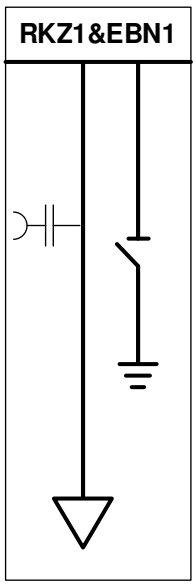
	DwKN1&PwK32 (old code Dw1N2 + fuse protect. withdr. VTs)
	DwKN1-PB37 (old code DW1NP03) Combination only allowed downstream the general protection.

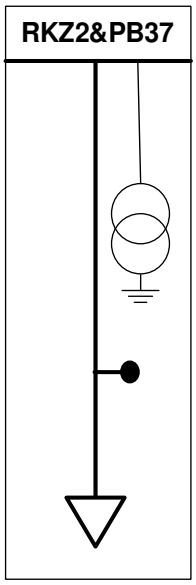
	DwKN1-PB39 (old code DW1NP03 + VTs disconnecting fuses)
	DwKN1-EBN1 In customer's substations, this combination is only allowed downstream the general protection.

	KKN2 & MKB2 (or MKB1) FU cable feeder with one 3-positions switch-disconnector and earthing-switch on the cable side, one VDS on the cable side and 3 metering CTs and VTs in the cables compartment to ensure billing metering function with cable input at lower side and busbar output at upper right (or left) side. The CTs are low voltage ring core CTs placed around the cables The VTs are metal-enclosed and directly plugged into the cable connectors. The operation of the switch-disconnector is padlockable in both closed and opened positions. The cables connection, CTs & VTs compartment as well as the LV compartment are tool-accessible and their door/cover are padlockable. This combination is only allowed with gas insulted switchgear and may only be used when approved by a DSO.
	In case a second set of 3 phase to earth VTs is installed in the metering FU, the extra code ‘’& PB37’’ is to be added behind the main code Mxxx. For example MBB1 & PB37.
	PwB32 & EBN1 (old code PW33) In customer’s substations, this combination is only allowed downstream the general protection.

	PwB32 & EBN2 (old code PW33 + VDS) In customer's substations, this combination is only allowed downstream the general.
	RBZ1 & EBN1 (old code RB1E) This combination is also allowed with AIS technology. In customer's substations, this combination is only allowed downstream the general protection.
	RBZ1 & EBN2 (old code RB1E + VDS) This combination is also allowed with AIS technology. In customer's substations, this combination is only allowed downstream the general protection.

	RBZ1 - PB310 (no old code existing) This combination is only allowed with GIS technology, and downstream the general protection.
	RBZ2 & PB37 (old code RB12P03 + earthing bolts) This combination is only allowed with AIS technology, and downstream the general protection.

	RBZ2 - PB37 (no old code existing) This combination is only allowed with AIS technology, and downstream the general protection.
	RBZ2 & PwB32 (old code RP12PW3 + Arcus bolts) This combination is only allowed with AIS technology and downstream the general protection.
	RKZ1 & EBN1 (old code RB2E + VDS) This combination is only allowed downstream the general protection.

	RKZ2 & PB37 (no old code existing) This combination is only allowed with AIS technology, and downstream the general protection.