Federatie van de elektriciteits- en gasnetbeheerders in België
Fédération des gestionnaires de réseaux électricité et gaz en Belgique

Amendment to the technical prescription C10/11

15 March 2021

This amendment shall take effect on 1.10.2021

7.6.2.4 Monitored quantities

The zero sequence of the voltage 59V0 is required for power-generating plants with a maximum power > 250 kVA. For all the other power-generating plants it is strongly recommended.

Will be replaced by

The function zero sequence component of the voltage 59V0 is therefore required for all power-generating plants equipped with an interface protection relay.

C.2 Interface protection relay settings

Function	**Range settings** (Trip value Time delay*)	**Default settings** (Trip value Time delay*)
U>>	> 110% U_n 0 s	115% U_n 0 s
U>	≤ 110% U_n 0 – 3 s	110% U_n 1 s
U<	50 – 85% U_n 0 – 1,5 s	70% U_n 1,5 s
U<<	25 – 50% U_n 0 s	25% U_n 0 s
f>	51,5 Hz 0 s	51,5 Hz 0 s **
f<	47,5 Hz 0 s	47,5 Hz 0 s **
U_0 ****	20% U_n 0 – 1,5 s	20% U_n 1,5 s
At least 1 of the following island detection functions (based on the selected relay)		
df/dt (RoCoF)		1 Hz/s 200 ms**
Vector jump		7° (three-phase) 0 s
Activation of a narrower frequency window based on local voltage criteria***		

* *A 0 s time delay means that no delay is added to the intrinsic technical duration required to initiate disconnection. The set delay is therefore the minimum value authorized by the tool used for programming the relay. The total duration of the shutdown may never exceed 0.12 seconds.*

** *Depending on the chosen protection relay, another time delay might be needed in order to assure the operate time is about*
- *100 ms for functions f< and f>*
- *300 ms for function RoCoF*

Remark: The term 'operate time' is clarified in Figure 8.

*** *This method complies with the description in the European standardization documents EN 50549-1 and EN 50549-2 of 'Example strategy 1' in their annex 'Examples of protection strategies' (see Figure 7 hereunder for the schematic diagram)*

**** *Only required when measuring at high voltage*

Table 9 – Settings of the interface protection relay

Will be replaced by

Function	**Range settings** (Trip value Time delay*)	**Default settings** (Trip value Time delay*)
U>>	> 110% U_n 0 s	115% U_n 0 s
U>	≤ 110% U_n 0 – 3 s	110% U_n 1 s
U<	50 – 85% U_n 0 – 1,5 s	70% U_n 1,5 s
U<<	15 – 50% U_n 0 – 5 s	15% U_n 0,25 s
f>	51,5 Hz 0 s	51,5 Hz 0 s **
f<	47,5 Hz 0 s	47,5 Hz 0 s **
U_0	20% U_n 0 – 1,5 s	20% U_n 1,5 s
Both df/dt (RoCoF) and activation of a narrower frequency window based on local voltage criteria should be present as island detection functions. All other island detection functions must be switched off.		
df/dt (RoCoF)		1 - 2 Hz/s 200 ms**
Vector jump***		7° (three-phase) 0 s
Activation of a narrower frequency window based on local voltage criteria****		Activation function*****: U_{dir} < 85% U_n U_{inv} > 5% U_n U_{res} (3 U_0) > 5% U_n Narrower frequency window: f> 50,3 Hz, 0,5 s f< 49,7 Hz, 0,5 s

* *A 0 s time delay means that no delay is added to the intrinsic technical duration required to initiate disconnection. The set delay is therefore the minimum value authorized by the tool used for programming the relay. The total duration of the shutdown may never exceed 0.12 seconds.*

** *Depending on the chosen protection relay, another time delay might be needed in order to assure the operate time is about*
- *100 ms for functions f< and f>*
- *300 ms for RoCoF function*

Remark: the term "operate time" is clarified in Figure 8.

*** *Only applicable to existing power-generating plants according to article 3 'Validity' exception 4.*

**** *This method complies with the description in the European standardization documents EN 50549-1 and EN 50549-2 of 'Example strategy 1' in their annex 'Examples of protection strategies' (see Figure 7 hereunder for the schematic diagram)*

***** *U_{dir} and U_{inv} can be replaced in the activation function by U< 85% U_n*

Table 9 – Settings of the interface protection relay