



Corrigendum to EN 50549-1:2019

English version

Replace the incomplete Table F.1 by the following complete table:

Table F.1 — Typical protection functions and related regulations on interface protection relays in the Italian solution

Protection function	Default threshold value	Default relay operate time	Maximum opening time of the output-break circuit (interface CB with tripping command operated from a voltage absence coil)
Maximum voltage $U_{>}.S1$ (ANSI CODE 59.S1), 10 minutes mean function (according to EN 61000-4-30, Class S, but adopting a moving window with refresh time ≤ 3 s)	1,10 V_n	Start time ≤ 3 s, not adjustable. Delay time setting = 0 ms Depending on voltage values during the moving window. Maximum value 603 s.	Depending on voltage values during the moving window. Maximum 603,70 s.
Maximum voltage $U_{>}.S2$ (ANSI CODE 59.S2)	1,20 V_n	200 ms	270 ms
Minimum voltage $U_{<}.S1$ (ANSI CODE 27.S1) ⁽¹⁾	0,85 V_n	1500 ms	1570 ms
Minimum voltage $U_{<}.S2$ (ANSI CODE 27.S2) ⁽¹⁾	0,4 V_n	200 ms	270 ms
Maximum frequency $f_{>}.S2$ (ANSI CODE 81.S2) ⁽²⁾	50,2 Hz	150 ms	170 ms
Minimum frequency $f_{<}.S2$ (ANSI CODE 81.S2) ⁽²⁾	49,8 Hz	150 ms	170 ms
Maximum frequency $f_{>}.S1$ (ANSI CODE 81.S1) ⁽²⁾	51,5 Hz	1,0 s	1,07 s
Minimum frequency $f_{<}.S1$ (ANSI CODE 81.S1) ⁽²⁾	47,5 Hz	4,0 s	4,07 s
Maximum residual voltage $U_{0>}$ (ANSI CODE 59V0) ⁽³⁾	5 % V_{rn} ⁽⁴⁾	For protection use: 25 s For voltmetric unlock use (ANSI CODE 81V): 0 ms (equal to start time: 70 ms)	For protection use: 25,07 s For voltmetric unlock use: equal to start time ⁽¹⁾
Maximum inverse sequence voltage U_i (ANSI CODE 59 Vi) ⁽¹⁾	15 % V_n/En ⁽⁵⁾ (indicative, depending on the network)	For voltmetric unlock use (ANSI CODE 81V): 0 ms (equal to start time: 70 ms)	Equal to start time
Minimum direct sequence voltage $U_{d<}$ (ANSI CODE 27 Vd) ⁽¹⁾	70 % V_n/En ⁽⁵⁾ (indicative, depending on the network)	For voltmetric unlock use (ANSI CODE 81V): 0 ms (equal to start time: 70 ms)	Equal to start time
Transfer trip		<150 ms	<220 ms

(1) Threshold active only for inverters and rotating generators connected to distribution network with AC/AC converters. For rotating generators directly connected $U_{<}.S2$: operate time 70 ms, threshold value 70%, $U_{<}.S1$: excluded.

(2) For voltage values below 0,2 V_n , $f_{>}.S1$, $f_{>}.S2$ & $f_{<}.S1$, $f_{<}.S2$ protections shall be disabled.

(3) Function used both for tripping and for voltmetric unlock function.

(4) Regulation in % of nominal residual voltage V_{rn} in case of a phase to earth fault with 0 Ω fault resistance derived directly from an open delta winding or calculated internally the IPR from phase to earth voltages derived from non iron core voltage transducers.

(5) Regulation in % of nominal phase to earth or phase to phase voltage, according to voltage measurements methods.