

EUROPROT +

Definite time overvoltage protection function

PROTECT
HUNGARY

Document ID: PP-13-21401

Budapest, January 2017

Version information

Version	Date	Modification	Compiled by
1.0	2011-03-14	First edition	Póka
1.1	2017-01-10	MV application notes added, technical data updated, reset ratio added, min. delay time added, binary status signal titles updated, formatting	Erdős

Definite time overvoltage protection function

The definite time overvoltage protection function measures three voltages. The measured values of the characteristic quantity are the RMS values of the basic Fourier components of the phase voltages. In medium voltage applications these are changed to phase-to-phase voltages.

The Fourier calculation inputs are the sampled values of the three phase voltages (UL1, UL2, UL3), and the outputs are the basic Fourier components of the analyzed voltages (UL1Four, UL2Four, UL3Four). They are not part of the TOV59 function; they belong to the preparatory phase. The phase-to-phase voltages (if used) are also calculated here.

The function generates start signals for the phases individually. The general start signal is generated if the voltage in any of the three measured voltages is above the level defined by parameter setting value.

The function generates a trip command only if the definite time delay has expired and the parameter selection requires a trip command as well.

The overvoltage protection function has a binary input signal, which serves the purpose of disabling the function. The conditions of disabling are defined by the user, applying the graphic equation editor.

Technical data

Function	Value	Accuracy
Pick-up starting accuracy		< ± 0,5 %
Reset time U> → Un U> → 0	60 ms 50 ms	
Operate time accuracy		< ± 20 ms
Minimum operate time	50 ms	

Parameters

Enumerated parameter

Parameter name	Title	Selection range	Default
Enabling or disabling the overvoltage protection function			
TOV59_Oper_EPar_	Operation	Off, On	On

Integer parameter

Parameter name	Title	Unit	Min	Max	Step	Default
Voltage level setting. If the measured voltage is above the setting value, the function generates a start signal.						
TOV59_StVol_IPar_	Start Voltage	%	30	130	1	110

Floating point parameter

Parameter name	Title	Unit	Min	Max	Step	Default
After starting the function drops off if the measured voltage is below the start voltage with at least this percentage.						
TOV59_ResetRatio_FPar_	Reset Ratio	%	1	10	1	5

Boolean parameter

Parameter name	Title	Default
Enabling start signal only:		
TOV59_StOnly_BPar_	Start Signal Only	FALSE

Timer parameter

Parameter name	Title	Unit	Min	Max	Step	Default
Time delay of the overvoltage protection function.						
TOV59_Delay_TPar_	Time Delay	ms	50	60000	1	100

Binary output status signals

Binary output status signal	Title	Explanation
TOV59_StL1_GrI_	StL1	Start in phase L1*
TOV59_StL2_GrI_	StL2	Start in phase L2*
TOV59_StL3_GrI_	StL3	Start in phase L3*
TOV59_GenSt_GrI_	GenSt	General start signal
TOV59_GenTr_GrI_	GenTr	General trip command

*In case of phase-to-phase voltages, these are changed to L12, L23, L31 respectively.

Binary input status signals

The conditions of disabling are defined by the user, applying the graphic equation editor.

Binary input status signal	Title	Explanation
TOV59_BlK_GrO_	Blk	Output status signal of a graphic equation defined by the user to disable the overvoltage protection function.