

Features

- Enabled through a binary input (circuit breaker close order) or automatically on dead line detection
- Resets automatically after a fixed time delay following successful closure of the circuit breaker
- Caters for both manual closing and automatic reclosing of the circuit breaker
- Protection function(s) released on pickup for direct tripping during the activated time are selectable
- Caters for the complete line section

Application

The main purpose of the SOTF switch-on-to-fault function is to provide high-speed tripping when energizing a power line on to a short-circuit fault on the line.

Automatic initiating of the SOTF function using dead line detection can only be used when the potential transformer is situated on the line-side of the circuit breaker. Initiation using dead line detection is highly recommended for busbar configurations where more than one circuit breaker at one line end can energize the protected line.

Generally, directional or non-directional overreaching distance protection zones are used as the protection functions to be released for direct tripping during the activated time. When line-side potential transformers are used, the use of non-directional distance zones secures switch-on-to-fault tripping for fault situations there directional information can not be established, for example, due to lack of polarizing voltage. Use of non-directional distance zones also gives fast fault clearance when energizing a bus from the line with a short-circuit fault on the bus.

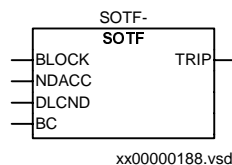
Functionality

The SOTF function is a logical function built-up from logical elements. It is a complementary function to the distance protection function.

It is enabled for operation either by the close command to the circuit breaker, by a normally closed auxiliary contact of the circuit breaker, or automatically by the dead line

detection. Once enabled, this remains active until one second after the enabling signal has reset. The protection function(s) released for tripping during the activated time can be freely selected from the functions included within the terminal. Pickup of any one of the selected protection functions during the enabled condition will result in an immediate trip output from the SOTF function.

Function block



Input and output signals**Table 1: Input signals for the SOTF (SOTF-) function block**

Signal	Description
BLOCK	Blocks function
NDACC	Connected to function(s) to be released for immediate tripping when SOTF function is enabled
DLCND	Connected to dead line detection function to provide automatic enabling of SOTF function
BC	Enabling of SOTF function by circuit breaker close command or normally closed auxiliary contact of the circuit breaker

Path in local HMI: ServiceReport/Functions/Impedance/ SwitchOntoFlt/FuncOutputs

Table 2: Output signals for the SOTF (SOTF-) function block

Signal	Description
TRIP	Trip output

Technical data**Table 3: SOTF - Automatic switch onto fault function**

Parameter	Value	Accuracy	
		50/60 Hz	16 2/3 Hz
Delay following dead line detection input before SOTF function is automatically enabled	200 ms	+/- 0.5% +/-10 ms	+/- 0.5% +/-10 ms
Time period after circuit breaker closure in which SOTF function is active	1000 ms	+/- 0.5% +/-10 ms	+/- 0.5% +/-10 ms

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