

Neutral Protection Setting Value

Micrologic 5 and 6 trip units incorporate the OSN (OverSized Neutral) function, which enables protection of the neutral conductor to be managed when third-order harmonic currents (and multiples thereof) are present (see *Harmonic Currents*, p. 87).

The table below shows, according to the value of the I_n/I_r parameter, the setting values of the neutral long time protection and neutral short time protection pick-ups:

IN/Ir Parameter		Long Time Pick-Up Value $I_r(I_n)$	Short Time Pick-Up Value $I_{sd}(I_n)$
OFF		N/A	N/A
0.5 (1)		$I_r/2$	$I_{sd}/2$
1		I_r	I_{sd}
OSN	3-pole (ENCT)	$1.6 \times I_r$	$1.6 \times I_{sd}$
	4-pole	$1.6 \times I_r$ limited to I_n	$1.6 \times I_{sd}$ limited to $I_n \times I_{sd}/I_r$
(1) For the 40 A rating, the $I_n/I_r = 0.5$ parameter setting is not available.			

The setting values of the neutral long time and short time protection time delays are identical to those for the phases.

The table below details the setting values of the neutral protection pick-ups (set to OSN) according to the phase protection pick-up I_r setting and the I_n rating of the 4-pole trip unit:

I_r/I_n Values	Long Time Pick-Up Value $I_r(I_n)$	Short Time Pick-Up Value $I_{sd}(I_n)$
$I_r/I_n < 0.63$	$1.6 \times I_r$	$1.6 \times I_{sd}$
$0.63 < I_r/I_n < 1$	I_n	$I_n \times I_{sd}/I_r$

Selection of the ENCT Option

The ENCT option is an external neutral CT for a 3-pole trip unit.

The table below indicates the reference for the ENCT option to be installed according to the I_n rating of the Micrologic trip unit and/or the need for OSN protection:

I_n Rating	Neutral Protection Limited to I_n	OSN Protection $> I_n$
40 A	LV429521	LV429521
100	LV429521	LV429521
160	LV430563	LV430563
250	LV430563	LV432575
400	LV432575	LV432575
630	LV432575	No (1)
(1) For the 630 A rating, the OSN function is limited to $I_n (= 630 \text{ A})$.		

Using the ENCT Option

Step	Action
1	Connect the neutral conductor to the ENCT option primary (terminals H1, H2).
2	Remove (if existing) the jumper between terminals T1 and T2 of the Micrologic trip unit.
3	Connect the ENCT option secondary (terminals T1, T2) to terminals T1 and T2 of the Micrologic trip unit.
4	Declare the ENCT option when setting the protection parameters for the Micrologic trip unit.

Note: If the ENCT option is declared before its installation, the Micrologic trip unit develops a fault (Enct screen). It is therefore mandatory to either install the ENCT option or to connect a jumper between terminals T1 and T2 on the Micrologic trip unit. The Enct screen must be cleared by pressing the OK key 2 times (validation and confirmation).