

Ground Current

Description

The LTM R controller measures ground currents and provides values in Amperes and as a percentage of FLC_{min}.

- The internal ground current ($I_{gr\Sigma}$) is calculated by the LTM R controller from the 3 line currents measured by the load current transformers. It reports 0 when the current falls below 10 % of FLC_{min}.
- The external ground current (I_{gr}) is measured by the external ground current transformer connected to Z1 and Z2 terminals.

Configurable Parameters

The control channel configuration has the following configurable parameter settings:

Parameter	Setting Range	Factory Setting
Ground Current Mode	<ul style="list-style-type: none"> • Internal • External 	Internal
Ground Current Ratio	<ul style="list-style-type: none"> • None • 100:1 • 200:1.5 • 1000:1 • 2000:1 • Other Ratio 	None
Ground CT Primary	<ul style="list-style-type: none"> • 1...65,535 	1
Ground CT Secondary	<ul style="list-style-type: none"> • 1...65,535 	1

External Ground Current Formula

The external ground current value depends on the parameter settings:

Calculated Measurement	Formula
External ground current	(Current through Z1-Z2) x (Ground CT Primary) / (Ground CT Secondary)

Ground Current Characteristics

The ground current function has the following characteristics:

Characteristic		Value	
		Internal Ground Current ($I_{gr\Sigma}$)	External Ground Current (I_{gr})
Unit		A	A
Accuracy			
LTM R 08xxx	$I_{gr} \geq 0.3 \text{ A}$	+/- 10 %	The greater of +/- 5 % or +/- 0.01 A
	$0.2 \text{ A} \leq I_{gr} \leq 0.3 \text{ A}$	+/- 15 %	
	$0.1 \text{ A} \leq I_{gr} \leq 0.2 \text{ A}$	+/- 20 %	
	$I_{gr} < 0.1 \text{ A}$	N/A ⁽¹⁾	
LTM R 27xxx	$I_{gr} \geq 0.5 \text{ A}$	+/- 10 %	
	$0.3 \text{ A} \leq I_{gr} \leq 0.5 \text{ A}$	+/- 15 %	
	$0.2 \text{ A} \leq I_{gr} \leq 0.3 \text{ A}$	+/- 20 %	
	$I_{gr} < 0.2 \text{ A}$	N/A ⁽¹⁾	
LTM R 100xxx	$I_{gr} \geq 1.0 \text{ A}$	+/- 10 %	
	$0.5 \text{ A} \leq I_{gr} \leq 1.0 \text{ A}$	+/- 15 %	
	$0.3 \text{ A} \leq I_{gr} \leq 0.5 \text{ A}$	+/- 20 %	
	$I_{gr} < 0.3 \text{ A}$	N/A ⁽¹⁾	
Resolution		0.01 A	0.01 A
Refresh interval		100 ms	100 ms
(1) For currents of this magnitude or lower, the internal ground current function should not be used. Instead, use external ground current transformers.			

Ground Current Ratio

The Ground Current Ratio parameter provides the ground current value as a percentage of FLCmin.

Ground Current Ratio Formulas

The ground current value is compared to FLCmin.

Calculated Measurement	Formula
Ground current ratio	$100 \times \text{ground current} / \text{FLCmin}$

Ground Current Ratio Characteristics

The ground current ratio function has the following characteristics:

Characteristic	Value
Unit	0..2,000 % of FLCmin
Accuracy	See Ground Current Characteristics, above
Resolution	0.1 % FLCmin
Refresh interval	100 ms