Ground fault protection parameter for S811+

Introduction

The Ground Fault protection parameter has options and features similar to other critical protection parameters. These features include enabling/disabling the parameter and adjustment of trip delay timing. Ground Fault trip thresholds are hard coded into the soft starter and cannot be changed by the user. Ground Fault accuracy is +/-10% of the trip threshold.

Application

To provide additional application protection to Eaton customers, the S811+ …P3S soft starter product line has added a parameter that monitors ground fault currents. All other protection parameters remain unchanged.

Parameters:

The S811+…P3S has the following Ground Fault Protections parameters;

Table 1 – GND Fault Parameters

Parameter	Units	Min	Max	Default	Notes
GND Fault – Enable[1]		0	2	0	0 = Disable 1 = Enable 2 = Warning
GND Fault Dly[2]	seconds	2	20	2	

[1] GND Fault protection is not active during the start ramp.
[2] GND Fault Delay time begins after the ramp time has expired.

Threshold Fault Actions:

The S811+…P3S soft starter meets the IEC Ground Fault (GF) trip thresholds;

Table 2 – IEC GND Fault Thresholds

Ground Fault Current % Threshold	Action
Less than 90%	No Fault Trip/Fault Warning
90% - 110%	Variable
Greater than 110%	Fault Trip/Fault Warning less than 1 second

Threshold Values:

The fault action threshold is set at 50% of the Motor Nameplate FLA and is not user adjustable.

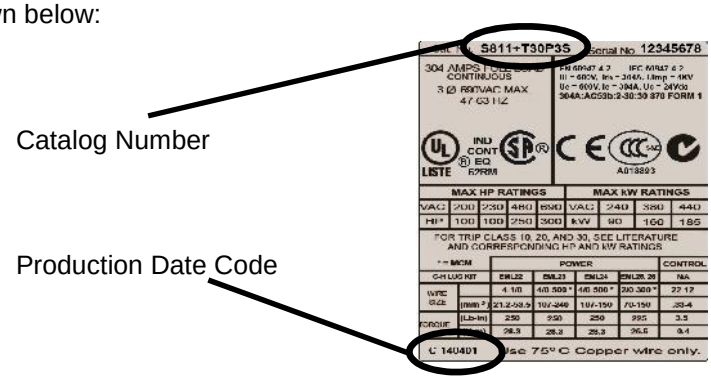
Table 3 – GND Fault Thresholds

Catalog Number	Units	FLA Range (Inside Delta[1])	Pickup Range (Inside Delta[1])
S811+N37P3S	Amps	11 – 37 (19 – 65)	18.5 Fixed (32 Fixed)
S811+N66P3S		20 – 66 (35 – 114)	10 – 33 (17.5 – 57)
S811+R10P3S		32 – 105 (55 – 182)	16 – 52.5 (27.5 – 91)
S811+R13P3S		42 – 135 (73 – 234)	21 – 67.5 (36.5 – 117)
S811+T18P3S		56 – 180 (97 – 311)	28 – 90 (48.5 – 115.5)
S811+T24P3S		75 – 240 (130 – 415)	37.5 – 120 (65 – 207.5)
S811+T30P3S		95 – 304 (164 – 526)	47.5 – 152 (82 – 263)
S811+U36P3S		112 – 360 (195 – 623)	56 – 180 (97.5 – 311.5)
S811+U42P3S		131 – 420 (227 – 727)	65.5 – 210 (113.5 – 363.5)
S811+U50P3S		156 – 500 (270 – 865)	78 – 250 (135 – 432.5)
S811+V36P3S		112 – 360 (195 – 623)	56 – 180 (97.5 – 311.5)
S811+V42P3S		131 – 420 (227 – 727)	65.5 – 210 (113.5 – 363.5)
S811+V50P3S		156 – 500 (270 – 865)	78 – 250 (135 – 432.5)
S811+V65P3S		203 – 650 (352 – 1125)	101.5 – 325 (176 – 562.5)
S811+V72P3S		225 – 720 (389 – 1246)	112.5 – 360 (194.5 – 623)
S811+V85P3S		265 – 850 (458 – 1471)	132.5 – 425 (229 – 735.5)
S811+V10P3S		320 – 1000 (539 – 1732)	160 – 500 (269.5 – 866)

[1] Line values

Application Notes:

- The measured RMS GND fault current value is not included in the Monitoring Menu, nor is it visible to any network communications. The unit will respond with a Fault Trip or Fault Warning action (if enabled) in accordance with Table 2 - IEC GND Fault Thresholds.
- GND Flt is not active for the duration of Soft Start Time during Voltage Ramp, Current Limit, or Pump Start time operation, regardless of when the internal bypass contactor(s) close.
- GND Flt is not active during JOG, Soft Stop, or Pump Stop operation.
- GND Flt indication is Fault Code 8, Fault Trip or Fault Warning.
- The GND Delay parameter does not delay the reaction time of the soft starter. The delay parameter adds time after the expiration of the Start ramp time in which the GND Fault protection is enabled (default – Disabled). EXAMPLE: If the Start ramp time is set to 20 seconds (default) and the GND Flt Dly time is set to 2 seconds (default), the GND Fault parameter will be enabled 22 seconds after the soft starter recognizes the Start command.
- The GND Fault feature is being added to the Protections Menu of the S811+…P3S soft starters on units with a production Date Code of C140401 and subsequent. S811+…P3S soft starters produced prior to this date do not have this feature. Warranty claims on production units produced prior to April 1, 2014 solely on the basis that Ground Fault protection is not installed will not be considered.
- Production units having Ground Fault protection installed may be identified by catalog number and date code as shown below:



Supporting Documentation:

Manuals	Reference Number
S811+ User Manual	MN03900001E
Firmware Changes	
Digital Processor (DSP)	V2.02.00
AVR	V3.04.01

Additional Help

In the US or Canada: please contact the Technical Resource Center at 1-877-ETN-CARE or 1-877-326-2273 option 2, option 2.

All other supporting documentation is located on the Eaton web site at www.eaton.com/Drives

Eaton
1000 Eaton Boulevard
Cleveland, OH 44122 USA
Eaton.com

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