

### Attachment 1, Application Guide Device Profile Settings

The guidelines below are for protective devices that have been identified as needed for the Enhanced Powerline Safety Setting Program (EPSS). The specific guidance below is for a Fast-Tripping Scheme mode of a device.

Controller Type	Normal Mode	Rev	Protection / Device Settings
Cooper 4C	Recloser	Any	<p><b>Normal Profile:</b> Design for dual application of normal conditions and Fast-Tripping. Fast-tripping scheme will be in effect when the reclosing relay is c/out. Blend existing protection standard / guidance for normal feeder conditions with the following fast-tripping additions:</p> <p>51P Settings (Phase TOC):</p> <ul style="list-style-type: none"> <li>• Load permitting, set Phase MTT <math>\leq</math> 60% LLL / 70% LL faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers)</li> <li>• Where load conflicts with above EOL philosophy, set Phase MTT as close to 1.2x normal maximum load (based on peak phase amps) as practical, to allow LR to "see" as many faults as possible in the extended protective zone</li> <li>• Set TCC1Ph = 102 curve</li> </ul> <p>51N Settings (Ground TOC):</p> <ul style="list-style-type: none"> <li>• Set Ground MTT <math>\leq</math> 50% LG / 50% LLG faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers)                         <ul style="list-style-type: none"> <li>○ Maintain <math>\leq</math> 180 A (3-wire) or <math>\leq</math> 240 A (4-wire) rule</li> </ul> </li> <li>• Set TCC1Gd = 101 curve</li> </ul> <p>50P Settings (Phase INST)<sup>2, 3</sup>:</p> <ul style="list-style-type: none"> <li>• Set phase instantaneous per existing protection</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>standard / guidance for normal feeder conditions</p> <ul style="list-style-type: none"> <li>• Clearing time should be considered when setting the instantaneous time delay of upstream and downstream devices.</li> </ul> <p>50N Settings (Ground INST)<sup>2, 3</sup>:</p> <ul style="list-style-type: none"> <li>• Set ground instantaneous per existing protection standard / guidance for normal feeder conditions</li> <li>• Clearing time should be considered when setting the instantaneous time delay of upstream and downstream devices.</li> </ul> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>• (3-Wire Systems) Set sensitive ground fault pickup to 15 A (percentage equivalent). Set time delay of furthest LR to 15 seconds, and each consecutive source side LR with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>• (4-Wire Systems) sensitive ground fault disabled</li> </ul> <p>79 Reclosing Relay:</p> <ul style="list-style-type: none"> <li>• PHASE: Only 1 reclose (2 shots/trips to lockout) maximum, with a 25 second reclose interval</li> <li>• GROUND: No reclosing (1 shot/trip to lockout)</li> </ul> <p><b>Alternate:</b> Keep/Reserve as alternate setting for switching use (e.g. abnormal switching). Work with DOE counterpart when needed to select appropriate alternate settings, with the following considerations:</p> <p>50GS / SGF / SEF (Optional / Case Dependent):</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set sensitive ground fault</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>pickup to 15 A (percentage equivalent). Set time delay of furthest LR to 15 seconds, and each consecutive source side LR with +3 sec additions (18 s, 21 s, 24 s, etc.)</p> <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> <li>● (4-Wire Systems) sensitive ground fault disabled</li> </ul>
<p><b>Cooper Form 6</b></p>	<p>Switch</p>	<p>26, 27, 28, <b>OR</b> 30</p>	<p>Consider RECLOSER mode and follow RECLOSER mode guidance; however, if kept as normal SWITCH mode, then:</p> <p>Phase (50P / 51P):</p> <ul style="list-style-type: none"> <li>● Set phase MTT <math>\leq</math> 95% of source side LR phase MTT</li> <li>● Set phase Instantaneous = Phase MTT, no delay (0.00 seconds)</li> <li>● Set phase overcurrent alarm to 83% of Phase MTT with 60 s delay</li> <li>● When possible and load permitting, ensure setting can see EOL (60% LLL, 70% LL) to next downstream protective device(s), looking beyond fuses/TripSavers.</li> </ul> <p>Ground (50N / 51N):</p> <ul style="list-style-type: none"> <li>● Set ground MTT <math>\leq</math> 95% of source side LR ground MTT</li> <li>● Set ground Instantaneous = Ground MTT, no delay (0.00 seconds)</li> <li>● (3-wire Systems) Set ground overcurrent alarm limit to 10% of ground MTT with 60 s delay</li> <li>● (4-wire systems) Set ground overcurrent alarm limit to 50% of ground MTT with 60 s delay</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>Ensure setting can see EOL (50% LG, 50% LLG) to next downstream protective device(s), looking beyond fuses/TripSavers.</li> </ul> <p>Set the Trips to Lockout greater than 1.</p> <ul style="list-style-type: none"> <li>There is an issue with the “Blink Save” logic that will cause the device to operate like an LR even in SW mode if Alt 2 is set to 1 Trips to Lockout.</li> </ul>
Cooper Form 6	Sectionalizer	28 <b>OR</b> 30	<p>The “Blink Save” feature is not effective with reclosing c/out (1 shot/trip to lockout). Change device from SECTIONALIZER mode to RECLOSER or SWITCH mode and follow appropriate guidance.</p> <p>An F6 SECTIONALIZER cannot be set with 1 Trips to Lockout – This will cause the device to operate as a RECLOSER due to the “Blink Save” feature logic.</p> <p>SECT mode is <b>NOT</b> recommended in Fire Areas due to the limit on reclose attempts on other protective mode devices.</p>
Cooper Form 6	Recloser	26, 27, 28, <b>OR</b> 30	<p><b>Normal Profile:</b> As an additional protective measure for fire threat areas, perform the following modifications to Normal Profile.</p> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>(3-Wire Systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest LR to 15 seconds, and each consecutive source side LR with +3 sec additions (e.g., 18 s, 21 s, 24 s, etc.). Set at 1 shot to Lock Out. <ul style="list-style-type: none"> <li>Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>(4-Wire Systems) sensitive ground fault disabled.</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>Phase and Ground Reclosing (79):</p> <ul style="list-style-type: none"> <li>Only 1 reclose (2 trips to lockout) maximum, with a 25 second reclose interval.</li> </ul> <p>Phase and Ground Overcurrent Alarms:</p> <ul style="list-style-type: none"> <li>Set phase overcurrent alarm to 83% of Phase MTT with 60 s delay</li> <li>(3-wire Systems) Set ground overcurrent alarm limit to 10% of ground MTT with 60 s delay</li> <li>(4-wire Systems) Set ground overcurrent alarm limit to 50% of ground MTT with 60 s delay</li> </ul> <p><b>ALT1 Profile:</b> IF Alt 1 was utilized for EPSS prior to revision 30 (or later) being released (February 2022), work with DOE counterpart to restore operational needed values to this profile with the below considerations for fire area protective measures.</p> <p>IF Alt 1 is presently used for operations, work with DOE to retain operational set points with the below modifications for fire area protective measures.</p> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>(3-Wire Systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest LR to 15 seconds, and each consecutive source side LR with +3 sec additions (e.g., 18 s, 21 s, 24 s, etc.). Set at 1 shot to Lock Out. <ul style="list-style-type: none"> <li>Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>(4-Wire Systems) sensitive ground fault disabled.</li> </ul> <p>Phase and Ground Reclosing (79):</p> <ul style="list-style-type: none"> <li>Only 1 reclose (2 trips to lockout) maximum, with a 25 second reclose interval.</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>Phase and Ground Overcurrent Alarms:</p> <ul style="list-style-type: none"> <li>• Set phase overcurrent alarm to 83% of Phase MTT with 60 s delay</li> <li>• (3-wire Systems) Set ground overcurrent alarm limit to 10% of ground MTT with 60 s delay</li> <li>• (4-wire Systems) Set ground overcurrent alarm limit to 50% of ground MTT with 60 s delay</li> </ul> <p><b>ALT3 Profile<sup>5</sup>:</b> Alternate 3 profile is only available for Revision 30+ setting files. Whenever possible, Form 6 controlled EPSS devices should be upgraded to revision 30. On EPSS devices, Alt 3 will exclusively be used in relation to fire area protection/EPSS use.</p> <p>51P Settings (Phase TOC):</p> <ul style="list-style-type: none"> <li>• Load permitting, set Phase MTT <math>\leq</math> 60% LLL / 70% LL faults within the protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers)</li> <li>• Where load conflicts with above guidelines, set Phase MTT as close to 1.2x or +50 A normal maximum load (based on peak phase amps) as practical, to allow LR to "see" as many faults as possible in the extended protective zone</li> <li>• Set phase overcurrent alarm limits to 83% of phase MTT value with 60 s delay</li> </ul> <p>51N Settings (Ground TOC):</p> <ul style="list-style-type: none"> <li>• Set Ground MTT <math>\leq</math> 50% LG / 50% LLG faults within the protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers) <ul style="list-style-type: none"> <li>○ Maintain <math>\leq</math> 180 A (3-wire) or <math>\leq</math> 240 A (4-wire) rule</li> </ul> </li> <li>• (3-wire Systems) Set ground overcurrent alarm limit to 10% of ground MTT with 60 s delay</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• (4-wire systems) Set ground overcurrent alarm limit to 50% of ground MTT with 60 s delay</li> </ul> <p>50P Settings (Phase INST)<sup>1,3,4</sup>:</p> <ul style="list-style-type: none"> <li>• Set phase instantaneous equal to Phase MTT</li> <li>• Set phase instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02s margin for up to 6 devices; consider SW MODE if &gt;6 series protective devices).</li> </ul> <p>50N Settings (Ground INST)<sup>1,3,4</sup>:</p> <ul style="list-style-type: none"> <li>• Set ground instantaneous equal to Ground MTT</li> <li>• Set ground instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02s margin for up to 6 devices; consider SW MODE if &gt;6 series protective devices).</li> </ul> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest LR to 15 seconds, and each consecutive source side LR with +3 sec additions (18 s, 21 s, 24 s, etc.). Set at 1 shot to Lock Out. <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>• (4-Wire Systems) sensitive ground fault disabled.</li> </ul> <p>79 Settings (Reclosing):</p>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• No recloses – 1 shot/trip to lockout</li> </ul> <p>Cold-Load Pick-Up Settings:</p> <ul style="list-style-type: none"> <li>• Do <b>NOT</b> use. Operational practices are in place to address picking up cold load.</li> </ul>
<p><b>Beckwith</b> <b>M7679</b></p>	<p>Switch</p>	<p>7.1</p>	<p>Consider RECLOSER mode and follow RECLOSER mode guidance; however, if kept as normal SWITCH mode, then:</p> <p>Phase (50P / 51P):</p> <ul style="list-style-type: none"> <li>• Set 51P pickup (TOC) ≤ 95% of source side LR phase MTT/pickup</li> <li>• Set 50P pickup (INST) = 51P pickup, no delay (0.00 seconds)</li> <li>• Set phase load encroachment alarm to 83% of phase MTT (50P Element 4) with 60 s delay</li> <li>• When possible and load permitting, ensure setting can see EOL (60% LLL, 70% LL) to next downstream protective device(s), looking beyond fuses/TripSavers.</li> </ul> <p>Ground (50N / 51N):</p> <ul style="list-style-type: none"> <li>• Set 51N pickup (TOC) ≤ 95% of source side LR ground MTT/pickup</li> <li>• Set 50N pickup (INST) = 51N pickup, no delay (0.00 seconds)</li> <li>• (3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (50N Element 4) with 60 s delay</li> <li>• (4-wire systems) Set ground load encroachment alarm limit to 50% of ground MTT (50N Element 4) with 60 s delay</li> <li>• Ensure setting can see EOL (50% LG, 50% LLG) to next downstream protective device(s), looking beyond fuses/TripSavers.</li> </ul> <p>Sensitive Ground (50GS):</p>



Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>Even though disabled, set 50GS pickup = 51N pickup to avoid nuisance alarming (note: max pickup = 160 A on 50GS)</li> </ul>
Beckwith  M7679	Sectionalizer	7.1	<p>The sequence coordination feature (i.e., “Blink Save”) is not effective with reclosing c/out (1 shot/trip to lockout). Do not use sequence coordination feature.</p> <p>If traditional sectionalizer setup is desired:</p> <ol style="list-style-type: none"> <li>1) Set to 1 count to trip – will open on first fault seen + dead-line/voltage loss</li> <li>2) Phase (50P / 51P): <ul style="list-style-type: none"> <li>• Set 51P pickup (TOC) ≤ 95% of source side LR phase MTT/pickup</li> <li>• Set 50P pickup (INST) = 51P pickup, no delay (0.00 seconds)</li> <li>• Set phase load encroachment alarm to 83% of phase MTT (50P Element 4) with 60 s delay</li> <li>• When possible and load permitting, ensure setting can see EOL (60% LLL, 70% LL) to next downstream protective device(s), looking at OH line sections beyond fuses/TripSavers.</li> </ul> </li> <li>3) Ground (50N / 51N): <ul style="list-style-type: none"> <li>• Set 51N pickup (TOC) ≤ 95% of source side LR ground MTT/pickup</li> <li>• Set 50N pickup (INST) = 51N pickup, no delay (0.00 seconds)</li> <li>• (3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (50N Element 4) with 60 s delay</li> <li>• (4-wire systems) Set ground load encroachment alarm limit to 50% of ground MTT (50N Element 4) with 60 s delay</li> </ul> </li> </ol>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• Ensure setting can see EOL (50% LG, 50% LLG) to next downstream protective device(s), looking at OH line sections beyond fuses/TripSavers.</li> </ul> <p>4) Sensitive Ground (50GS)</p> <ul style="list-style-type: none"> <li>• Even though disabled, set 50GS pickup = 51N pickup to avoid nuisance alarming (note: max pickup = 160A on 50GS)</li> </ul> <p>Otherwise, change device from SECTIONALIZER mode to RECLOSER or SWITCH mode and follow appropriate guidance.</p> <p><b>RECLOSER MODE 1:</b> As an additional protective measure in high fire threat districts, perform the following additions to LR Mode 1.</p> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest LR to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>• (4-Wire Systems) sensitive ground fault disabled.</li> </ul> <p>79 Reclosing Relay:</p> <ul style="list-style-type: none"> <li>• PHASE: Only 1 reclose (2 shots/trips to lockout) maximum, with a 25 second reclose interval</li> <li>• GROUND: No reclosing (1 shot/trip to lockout)</li> </ul> <p>Phase and Ground Load Encroachment Alarms:</p> <ul style="list-style-type: none"> <li>• Set phase load encroachment alarm to 83% of phase MTT (50P Element 4) with 60 s delay</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• (3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (50N Element 4) with 60 s delay</li> <li>• (4-wire systems) Set ground load encroachment alarm limit to 50% of ground MTT (50N Element 4) with 60 s delay</li> </ul> <p>Hot Line Tag (HLT)</p> <ul style="list-style-type: none"> <li>• Ensure HLT 50P is enabled and matches the 51P pickup value with 0.00 delay</li> <li>• Ensure HLT 50GS is enabled and matches the 51N pickup values with 0.00 delay</li> </ul>
Beckwith M7679	Recloser	7.1	<p><b>RECLOSER MODE 1:</b> As an additional protective measure in high fire threat districts, perform the following additions to LR Mode 1.</p> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest LR to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>• (4-Wire Systems) sensitive ground fault disabled.</li> </ul> <p>79 Reclosing Relay:</p> <ul style="list-style-type: none"> <li>• PHASE: Only 1 reclose (2 shots/trips to lockout) maximum, with a 25 second reclose interval</li> <li>• GROUND: No reclosing (1 shot/trip to lockout)</li> </ul> <p>Phase and Ground Load Encroachment Alarms:</p> <ul style="list-style-type: none"> <li>• Set phase load encroachment alarm to 83% of phase MTT (50P Element 4) with 60 s delay</li> <li>• (3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (50N Element</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>4) with 60 s delay</p> <ul style="list-style-type: none"> <li>(4-wire systems) Set ground load encroachment alarm limit to 50% of ground MTT (50N Element 4) with 60 s delay</li> </ul> <p>Hot Line Tag (HLT)</p> <ul style="list-style-type: none"> <li>Ensure HLT 50P is enabled and matches the 51P pickup value with 0.00 delay</li> <li>Ensure HLT 50GS is enabled and matches the 51N pickup values with 0.00 delay</li> </ul> <p><b>RECLOSER MODE 2:</b> Keep/Reserve as alternate setting for switching use (e.g. abnormal switching), with following considerations:</p> <p>50GS / SGF / SEF (Optional / Case Dependent):</p> <ul style="list-style-type: none"> <li>(3-Wire systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest protective device to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>(4-Wire Systems) sensitive ground fault disabled.</li> </ul> <p>79 Reclosing Relay:</p> <ul style="list-style-type: none"> <li>PHASE: Only 1 reclose (2 shots/trips to lockout) maximum, with a 25 second reclose interval delay</li> <li>GROUND: No reclosing (1 shot/trip to lockout)</li> </ul> <p>Phase and Ground Overcurrent Alarms:</p> <ul style="list-style-type: none"> <li>Set phase load encroachment alarm to 83% of phase MTT (50P Element 4) with 60 s delay</li> <li>(3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (50N Element 4) with 60 s delay</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• (4-wire systems) Set ground load encroachment alarm limit to 50% of ground MTT (50N Element 4) with 60 s delay</li> </ul> <p>Hot Line Tag (HLT)</p> <ul style="list-style-type: none"> <li>• Ensure HLT 50P is enabled and matches the 51P pickup value with 0.00 delay</li> <li>• Ensure HLT 50GS is enabled and matches the 51N pickup values with 0.00 delay</li> </ul> <p><b>RECLOSER MODE 3<sup>5</sup>:</b> Repurpose for fast tripping. Where LR MODE 3 is already designed for other use (e.g. abnormal switching), work with DOE counterpart to maintain existing MTT values, when possible, while meeting fast-tripping guidance.</p> <p>51P Settings (Phase TOC)</p> <ul style="list-style-type: none"> <li>• Load permitting, set Phase MTT <math>\leq</math> 60% LLL / 70% LL faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers)</li> <li>• Where load conflicts with above guidelines, set Phase MTT as close to 1.2x or +50 A normal maximum load (based on peak phase amps) as practical, to allow LR to "see" as many faults as possible in the extended protective zone</li> </ul> <p>51N Settings (Ground TOC)</p> <ul style="list-style-type: none"> <li>• Set Ground MTT <math>\leq</math> 50% LG / 50% LLG faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses/TripSavers, looking at OH line sections beyond fuses/TripSavers) <ul style="list-style-type: none"> <li>○ Maintain <math>\leq</math> 180 A (3-wire) or <math>\leq</math> 240 A (4-wire) rule</li> </ul> </li> </ul> <p>50P Settings (Phase INST)</p> <ul style="list-style-type: none"> <li>• Set phase load encroachment alarm limits to</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>83% of phase MTT value (Element 4) with 60 s delay</p> <ul style="list-style-type: none"> <li>• Set phase instantaneous equal to Phase MTT (51P)</li> <li>• Set phase instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02 s margin for up to 6 devices; consider SW MODE if &gt;6 series protective devices).</li> </ul> <p>50N Settings (Ground INST)</p> <ul style="list-style-type: none"> <li>• (3-wire Systems) Set ground load encroachment alarm limit to 10% of ground MTT (Element 4) with 60 s delay</li> <li>• (4-wire Systems) Set ground load encroachment alarm limit to 50% of ground MTT (Element 4) with 60 s delay</li> <li>• Set ground instantaneous equal to Ground MTT (51N)</li> <li>• Set ground instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02s margin for up to 6 devices; consider SW MODE if &gt;6 series protective devices).</li> </ul> <p>50GS / SGF / SEF:</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set sensitive ground fault pickup to 15 A. Set time delay of furthest protective device to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance</li> </ul> </li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>tripping. Evaluate on a case-by-case basis.</p> <ul style="list-style-type: none"> <li>• (4-Wire Systems) sensitive ground fault disabled.               <ul style="list-style-type: none"> <li>○ Even though disabled, set 50GS pickup = 51N pickup to avoid nuisance alarming (note: max pickup = 160 A on 50GS)</li> </ul> </li> </ul> <p>79 Settings (Reclosing)</p> <ul style="list-style-type: none"> <li>• No recloses – 1 shot/trip to lockout</li> </ul> <p>Cold-Load Pick-Up Settings:</p> <ul style="list-style-type: none"> <li>• Do not use. Operational practices are to address picking up cold load.</li> </ul> <p>Hot Line Tag (HLT)</p> <ul style="list-style-type: none"> <li>• Ensure HLT 50P is enabled and matches the 51P pickup value with 0.00 delay</li> <li>• Ensure HLT 50GS is enabled and matches the 51N pickup values with 0.00 delay</li> </ul>
GE F60 & SEL 351	NA	NA	<p style="text-align: center;"><b>NOTE:</b></p> <p>Group selectors not already active locally or via SCADA will require a relay test and clearance.</p> <p><b>GROUP 1:</b></p> <p><u>Group 1 generic description – Normal with 1 reclose and SGF always enabled</u></p> <p>As an additional protective measure in high fire threat districts, perform the following additions to Group 1.</p> <p>50GS / SGF / SEF (Neutral TOC2 / 50G2P &amp; 67G2D – Requires relay test/clearance) :</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set Neutral TOC2 pickup to 15 A. Set time delay of furthest protective device to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.)               <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the</li> </ul> </li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</p> <ul style="list-style-type: none"> <li>(4-Wire Systems) sensitive ground fault (i.e. Neutral TOC2) disabled.</li> </ul> <p>Phase and Ground Reclosing (79);</p> <ul style="list-style-type: none"> <li>Only 1 reclose (2 trips to lockout) maximum, with a 25 second reclose interval delay</li> </ul> <p><b>GROUP 2:</b></p> <p><u>Group 2 generic description – Clearance/Bypass/Temp Gen</u></p> <p>Keep/Reserve as alternate setting for switching use (e.g. abnormal switching, Temp Gen, PSPS, etc.), with the following considerations:</p> <p>Phase and Ground Reclosing (79);</p> <ul style="list-style-type: none"> <li>Depending on desired application, either no recloses (1 trip to lockout) or only 1 reclose (2 trips to lockout) maximum, with a 25 second reclose interval delay</li> </ul> <p><b>GROUP 3:</b></p> <p><u>Group 3 generic description – Fast Tripping with SGF always enabled</u></p> <p>Re-purpose for fast tripping. Where GROUP 3 is already designed for other alternate uses (e.g. abnormal switching, Temp Gen, PSPS, etc.), “move” GROUP 3</p>



Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>settings into GROUP 6 and save/release to service.</p> <p>51P Settings (Phase TOC)</p> <ul style="list-style-type: none"> <li>• Load permitting, set Phase MTT <math>\leq</math> 60% LLL / 70% LL faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses, looking at OH line sections beyond fuses/TripSavers)</li> <li>• Where load conflicts with above guidelines, set Phase MTT as close to 1.2x or +50 A normal maximum load (based on peak phase amps) as practical, to allow relay to "see" as many faults as possible in the extended protective zone</li> </ul> <p>51N Settings (Ground TOC)</p> <ul style="list-style-type: none"> <li>• Set Ground MTT <math>\leq</math> 50% LG / 50% LLG faults within protection zone, removing fuses and TripSavers as delimiters for downstream OH line sections (i.e. 'ignore' fuses, looking at OH line sections beyond fuses/TripSavers) <ul style="list-style-type: none"> <li>○ Maintain <math>\leq</math> 180A (3-wire) or <math>\leq</math> 240A (4-wire) rule</li> </ul> </li> </ul> <p>50P Settings (Phase INST) <sup>3</sup></p> <ul style="list-style-type: none"> <li>• Set phase instantaneous equal to Phase MTT</li> <li>• Set instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02s margin for up to 6 devices; consider SW MODE on field devices if &gt;6 series protective devices).</li> </ul> <p>50N Settings (Ground INST) <sup>3</sup></p> <ul style="list-style-type: none"> <li>• Set ground instantaneous equal to Ground MTT</li> </ul>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<ul style="list-style-type: none"> <li>• Set ground instantaneous time delay of the furthest protective device, including FuseSavers, to 0.00 seconds, and each consecutive source side protective device with an additional +0.02 to +0.05 second time delay, optimizing for margin. Protective device time delays not to exceed 0.10 second time delay (allows 0.02s margin for up to 6 devices; consider SW MODE on field devices if &gt;6 series protective devices).</li> </ul> <p>50GS / SGF / SEF (Neutral IOC2 / 50G2P &amp; 67G2D – Requires relay test/clearance) :</p> <ul style="list-style-type: none"> <li>• (3-Wire systems) Set Neutral IOC2 pickup to 15 A. Set time delay of furthest protective device to 15 seconds, and each consecutive source side protective device with +3 sec additions (18 s, 21 s, 24 s, etc.) <ul style="list-style-type: none"> <li>○ Depending on natural ground current, the 15 A pickup may be increased to a suitable value that avoids nuisance tripping. Evaluate on a case-by-case basis.</li> </ul> </li> <li>• (4-Wire Systems) sensitive ground fault (i.e. Neutral IOC2) disabled.</li> </ul> <p>79 Settings (Reclosing)</p> <ul style="list-style-type: none"> <li>• No recloses – 1 shot/trip to lockout</li> </ul> <p><b>GROUP 4:</b></p> <p><u>Group 4 generic description – Fast Tripping without SGF</u>  Re-purpose to use as copy of GROUP 3 (Fast Tripping), <u>with no SGF functionality</u> (i.e. SGF c/out). Where GROUP 4 is already designed for other alternate uses (e.g. abnormal switching, Temp Gen, PSPS, etc.), “move” GROUP 4 settings into GROUP 6 and</p>

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>save/release to service</p> <p><b>GROUP 5:</b></p> <p><u>Group 5 generic description – Normal without SGF</u>  Re-purpose to use as copy of GROUP 1 (“Normal”),  <u>with no SGF functionality</u> (i.e. SGF c/out).</p> <p><b>GROUP 6:</b></p> <p><u>Group 6 generic description – Spare with SGF</u></p> <p>When needed, use as alternate setting for switching use that is separate from GROUP 2 (e.g. different abnormal switching condition, Temp Gen, PSPS, etc.) or a duplication of GROUP 2 with SGF set.</p>
Siemens FuseSaver	NA	NA	FuseSavers shall be placed in “FAST-SINGLE” protection mode. Existing FS Policy file while in “FAST-SINGLE” mode is to trip in <0.1s for load/fault currents > 2x pickup. For the purpose of device coordination and margin, assume the FuseSaver trips in 0.0 seconds.
SEL 251 / Basler	NA	NA	Guidance to be provided on a case-by-case basis.
Electro-Mechanical	NA	NA	Guidance to be provided on a case-by-case basis.
Interrupter	Interrupter	Any	When interrupter feeds downstream OH line sections, guidance to be provided on a case-by-case basis.

Controller Type	Normal Mode	Rev	Protection / Device Settings
<ol style="list-style-type: none"> <li>1. The minimum delay on an F6 control is 0.01 seconds not 0.0 as it is in the Beckwith and the FuseSaver. As a result, the most series protective/recloser mode devices is reduced by one.</li> <li>2. Minimum delay on a 4C control is 1 cycle and can only be incremented in full cycle increments.</li> <li>3. Where possible, set the delay to accommodate the physical operating time of other EPSS devices in series.               <ol style="list-style-type: none"> <li>a. Example: oil tanks take longer to clear so give a longer time separation on an upstream device</li> </ol> </li> <li>4. F6 controls (through at least revision 30) have delay compensation logic built in for the time delay. Through testing the compensation is ~17ms but actual time varies based on fault duty.               <ol style="list-style-type: none"> <li>a. Example: IF a time delay programmed into the F6 control of 0.04s, the control will actually send the trip signal at 0.023s.</li> <li>b. This creates a conflict coordinating with other devices that don't do this compensation. Thus, to follow the recommended intervals, F6 controls should get an additional 0.017s programmed into the actual setting file.</li> <li>c. This would allow for F6 controlled devices to potentially have a programmed delay of &gt;0.1s (up to a maximum of 0.117).</li> </ol> </li> <li>5. Some EPSS devices have been designated as protecting Non-Tier Buffer areas. Non-Tier Buffer areas are areas that are <b>not</b> explicitly within our defined fire areas but where we <i>may</i> want to enable EPSS/Fast Tripping Schemes depending on the conditions. The conditions to enable these devices are more elevated and as such, the settings can vary from the above guidance:               <ol style="list-style-type: none"> <li>a. When possible, accommodate Non-Tier Buffer devices to coordinate delays in device operations to optimize reliability. <b>IF</b> coordination with Non-Tier Buffer devices is <b>not</b></li> </ol> </li> </ol>			

Controller Type	Normal Mode	Rev	Protection / Device Settings
			<p>feasible, <b>THEN</b> set the delay to match immediate downstream EPSS devices as a conservative approach to faster tripping for phase and ground elements. For SGF (if applicable) set the time delay 1 second above the downstream device in an effort to coordinate.</p> <p><b>Extra Efforts / FAQs:</b></p> <ul style="list-style-type: none"> <li>• Time permitting or IF feasible, change normal SWITCH mode LRs to normal RECLOSER mode – may require additional effort to add to non-reclose scripts</li> <li>• Treat TripSavers similarly as fuses, due to their single-phase tripping nature</li> <li>• Variations from the above guidelines should be noted/documentated where the setting record is stored</li> </ul>