



## GE Power Management Control System

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### Technical Note# 58

#### GE Power Management Control System

### Summary of Events for PMCS 5.1 Devices

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**Subject:** This note summarizes the available events for each of the PMCS 5.1 devices and how to change events for the Eventlogger.

**Applies To:** PMCS 5.1 and all its compatible devices.

The GE DDE Server supports eventprocessing for the following GE devices:

1. Power Leader Meter (PLM)
2. Power Leader Electronic Power Meter (PLEPM)
3. Spectra ECM- Electronic Control Module (ECM)
4. MDP - Overcurrent Relay (MDP)
5. Spectra MicroVersaTrip Unit RMS6 (MVT)
6. Enhanced MicroVersaTrip-C and -D Trip Units (EMVTC/D)
7. Electronic Power Meter (EPM 3710)
8. Electronic Power Meter (EPM 3720)
9. Multilin SR469 Motor Management Relay (ML469)
10. Multilin SR489 Generator Management Relay (ML489)
11. Multilin SR565 Feeder Management Relay (ML565)
12. Multilin Power Quality Meter (MLPQM)
13. Multilin SR745 Transformer Management Relay (ML745)
14. Multilin SR750 Feeder Management Relay (ML750)

Events are not supported for the Multilin 239 Motor Protection Relay, Multilin 269+ Motor Relay, Multilin Relay, PLC 90/30, PLC 90/70, Modbus Concentrator or user-defined (generic) devices.

Each supported device has different kinds of events and each event is represented by an event code, a unique associated with an event description. The DDE server identifies them through the eventpvt.ini file in the E subdirectory. Events may either report as an Event, an Acknowledgable Alarm, or Non-Acknowledgable Alarm. How the event code is defined in the eventpvt.ini file. In the eventpvt.ini, all the event codes for a particular device are grouped together with the following format:

[Device 1 Type]

EventCode1 = Ack(UnAck) | NoAck | Event

EventCode2 = Ack(UnAck) | NoAck | Event

[Device 2 Type]

EventCode1 = Ack(UnAck) | NoAck | Event

EventCode2 = Ack(UnAck) | NoAck | Event

where Ack(UnAck) | NoAck | Event equals

0 - Acknowledgable Alarm

2 - Non-Acknowledgable Alarm

3 - Event

99 - Disregard this event

For example, EPM3710 reports an event "Setup Changed" in the Eventlogger. In the eventpvt.ini file, under the device name and category,

[EPM3710]

102=3

where "102" is the event code for "Setup Changed" and "3" represents that event code 102 is reported as an acknowledged alarm, simply change the setting to "102=0". Similarly, Event codes defined in the eventpvt.ini file but are not available for a particular device can be added to the eventpvt.ini. The Multilin 745, Multilin 750, and EPM3720 are more complicated, refer to the corresponding section for details.

## 1. Power Leader Meter (PLM)

<b>Table 1</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>6</b>	Curr Unbal trip	0
<b>7</b>	Volt Unbal Trip	0
<b>8</b>	O/V trip	0
<b>9</b>	U/V Trip	0
<b>E</b>	Curr Unbal Alarm	2
<b>F</b>	Volt Unbal Alarm	2
<b>10</b>	O/V Alarm	2
<b>11</b>	U/V alarm	2
<b>12</b>	Power Reversal Alarm	2
<b>13</b>	O/C alarm	2
<b>14</b>	Waveform captured on request	3
<b>15</b>	O/C waveform capture	0
<b>21F</b>	Hardware Failure	3

## 2. Power Leader Electronic Power Meter (PLEPM)

<b>Table 2</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>100</b>	Voltage Phase Loss	2
<b>200</b>	Internal Communication Error	3
<b>201</b>	Internal Communication Recovered	3
<b>208</b>	Configuration Change	2
<b>20A</b>	Address Conflict Detected	3
<b>21F</b>	Hardware Failure	3
<b>242</b>	Remote setpoint change Failed	3
<b>243</b>	Partial energy loss error	2
<b>244</b>	Complete energy loss error	2
<b>245</b>	Meter errors cleared locally	3
<b>246</b>	Meter initialized locally	3
<b>247</b>	Demand reset locally	2
<b>249</b>	Unspecified general failure	3

### 3. Spectra ECM- Electronic Control Module (ECM)

<b>Table 3</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>4</b>	G/F Trip	0
<b>6</b>	Curr Unbal trip	0
<b>113</b>	Overload Trip	0
<b>114</b>	Commanded Trip	0
<b>21F</b>	Hardware Failure	3
<b>220</b>	Phase A Short	2
<b>221</b>	Phase A Open	2
<b>222</b>	Phase B Short	2
<b>223</b>	Phase B Open	2
<b>224</b>	Phase C Short	2
<b>225</b>	Phase C Open	2
<b>226</b>	Ident Resistor Invalid	3
<b>227</b>	Ident Resistor Open	3
<b>230</b>	Class Changed	2
<b>231</b>	FLA Adjust Changed	2
<b>232</b>	Unbalance Switch changed	2
<b>233</b>	Ground Fault switch changed	2
<b>238 - 23F</b>	Unused and Reserved for ECM	3

#### **4. MDP - Overcurrent Relay (MDP)**

<b>Table 4</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>1</b>	Long Time Overcurrent Trip	0
<b>3</b>	Instantaneous O/C Trip	0
<b>4</b>	G/F Trip	0
<b>5</b>	G/F Inst. Trip	0
<b>200</b>	Internal Communication Error	3
<b>201</b>	Internal Communication Recovered	3
<b>208</b>	Configuration Change	2
<b>209</b>	Device has opened for reasons other than an event caused by programmer	0
<b>20A</b>	Address Conflict Detected	3
<b>21F</b>	Hardware Failure	3

## 5. Spectra MicroVersaTrip Unit RMS6 (MVT)

<b>Table 5</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>208</b>	Configuration Change	2
<b>209</b>	Device has opened for reasons other than an event caused by programmer	0
<b>20A</b>	Address Conflict Detected	3
<b>21F</b>	Hardware Failure	3
<b>309</b>	Device Remotely opened	0
<b>30A</b>	Device Remotely closed	0
<b>30B</b>	UVR trip	0
<b>30C</b>	Shunt trip	0

## 6. Enhanced MicroVersaTrip-C and -D Trip Units (EMVTC/D)

<b>Table 6</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>208</b>	Configuration Change	2
<b>209</b>	Device has opened for reasons other than an event caused by programmer	0
<b>20A</b>	Address Conflict Detected	3
<b>21F</b>	Hardware Failure	3
<b>280</b>	NVM Failure on Protection board	3
<b>281</b>	ROM Failure on Protection board	3
<b>282</b>	RAM Failure on Protection board	3
<b>283</b>	A/D Converter Failure on Protection board	3
<b>288</b>	IPC Failure on Metering Board	3
<b>289</b>	NVM Failure on Metering Board	3
<b>28A</b>	Interrupt Failure on Metering Board	3
<b>28B</b>	ROM Failure on Metering Board	3
<b>28C</b>	Ram Failure on Metering Board	3
<b>28D</b>	A/D Converter failure on Metering Board	3
<b>300</b>	Current Unbalance Trip	0
<b>301</b>	Under Voltage Trip	0
<b>302</b>	Voltage Unbalance Trip	0
<b>303</b>	Power Reversal Trip	0
<b>304</b>	Instantaneous Trip	0
<b>305</b>	Short Time Trip	0
<b>306</b>	Long Time Trip	0

307	Ground Fault Trip	0
308	Overvoltage Protection Relay trip	0
30B	UVR trip	0
30C	Shunt trip	0

## 7. Electronic Power Meter (EPM 3710)

Table 7		
Event Code (Hex)	Meaning	Ack/NoAck/Event
001	Setpoint Over Voltage	2
002	Setpoint Under Voltage	2
003	Setpoint Voltage Unbalance	2
004	Setpoint Over Amperage	2
005	Setpoint Amperage Unbalance	2
006	Setpoint Over KVA	2
007	Setpoint Over KW Forward	2
008	Setpoint Over KW Reverse	2
009	Setpoint Over KVAR Forward	2
010	Setpoint Over KW Demand	2
011	Setpoint Over Amp Demand	2
012	Setpoint Over Frequency (x10)	2
013	Setpoint Under Frequency (x10)	2
014	Setpoint Over Vaux	2
015	Setpoint Under Vaux	2
016	Setpoint Phase Reversal	2
017	Setpoint Under PF Lagging	2
018	Setpoint Under PF Leading	2
019	Setpoint Over I4	2
020	Setpoint Over KVAR Reverse	2



<b>021</b>	Setpoint S1 Input Normal	2
<b>022</b>	Setpoint S1 Input Active	2
<b>023</b>	Setpoint S2 Input Normal	2
<b>024</b>	Setpoint S2 Input Active	2
<b>025</b>	Setpoint S3 Input Normal	2
<b>026</b>	Setpoint S3 Input Active	2
<b>027</b>	Setpoint S4 Input Normal	2
<b>028</b>	Setpoint S4 Input Active	2
<b>029</b>	Setpoint SX Input Normal	2
<b>030</b>	Setpoint SX Input Active	2
<b>031</b>	Reserved for future expansion	2
<b>032</b>	Setpoint Over Voltage Phase A	2
<b>033</b>	Setpoint Over Voltage Phase B	2
<b>034</b>	Setpoint Over Voltage Phase C	2
<b>035</b>	Unused	2
<b>036</b>	Setpoint Under Voltage Phase A	2
<b>037</b>	Setpoint Under Voltage Phase B	2
<b>038</b>	Setpoint Under Voltage Phase C	2
<b>039</b>	Unused	2
<b>040</b>	Setpoint Voltage Unbalance Phase A	2
<b>041</b>	Setpoint Voltage Unbalance Phase B	2
<b>042</b>	Setpoint Voltage Unbalance Phase C	2
<b>043</b>	Unused	2
<b>044</b>	Setpoint Over Amperage Phase A	2
<b>045</b>	Setpoint Over Amperage Phase B	2
<b>046</b>	Setpoint Over Amperage Phase C	2
<b>047</b>	Unused	2

<b>048</b>	Setpoint Amps Unbalance Phase A	2
<b>049</b>	Setpoint Amps Unbalance Phase B	2
<b>050</b>	Setpoint Amps Unbalance Phase C	2
<b>257</b>	Time Set	3
<b>258</b>	Setup Changed	3
<b>259</b>	Alarms Changed	3
<b>260</b>	Power Up/Reset	3
<b>261</b>	Relay Control	3
<b>262</b>	Cleared Max/Min	3
<b>263</b>	Cleared Hours	3
<b>268</b>	Factory Clear	3
<b>269</b>	Firmware Revision	3
<b>270</b>	NV Failure	3
<b>271</b>	Frequency Failure	2
<b>272</b>	Hydro Failure	2
<b>273</b>	Setpoint Failure	3
<b>274</b>	Front Panel Failure	3
<b>275</b>	Propack Failure	3
<b>276</b>	ISR Failure	3
<b>277</b>	Init Failure	3
<b>278</b>	Calc Failure	3
<b>279</b>	Timer Failure	3
<b>280</b>	Status Input Failure	3
<b>281</b>	Status Input #1 - Normal	3
<b>282</b>	Status Input #2 - Normal	3
<b>283</b>	Status Input #3 - Normal	3
<b>284</b>	Status Input #4 - Normal	3
<b>285</b>	Status Input #1 - Active	3
<b>286</b>	Status Input #2 - Active	3

287	Status Input #3 - Active	3
288	Status Input #4 - Active	3

## 8. Electronic Power Meter (EPM 3720)

The description of the event reported by EPM 3720 is composed of cause and effect, which are translated and effect key respectively. The cause key identifies the reason that the event occurred. The effect key identifies the event that occurred. The EventCode that appears in the eventpvt.ini file is the hexadecimal code representing the Key value. The default category setting of a particular event code can be changed by following the procedure. For the purpose of simplification, the 3720 events are classified into three categories.

### a. Category A:

The cause key for this category is in Table 8.1 and the effect key is in Table 8.2. The format of the event code will be XXYY where XX and YY are shown in the row and the column of Table 8.1 respectively. In the table with a "Y" mark indicating the corresponding cause key exists.

For example, cause key 4100 represents the cause "Volts LN Phase A" and the measurement method is Standard Present, but cause key 4D00 does not exist.

For each possible cause, the effect key is in Table 8.2. Therefore, any combination between Table 8.1 and Table 8.2 forms an event.

For example, if an overvoltage condition on phase A activates standard setpoint #1, the cause key would be equal to 4101. The effect key would be equal to 8100. The event code representing this event is 8101.

### b. Category B

The cause key for this category is in Table 8.3 and the effect key is in Table 8.4. Effect key with the Standard supported mode (STD) will be the possible effect of the Standard setpoints in Table 8.3. Effect key with the High-Speed supported mode (HS) will be the possible effect of the High-Speed setpoints in Table 8.4.

For example, if an overvoltage condition on phase A activates standard setpoint #1, the cause key would be equal to 4101. The effect key would be equal to 8100. The event code representing this event is 8101.

### c. Category C

The effect key in this category is in Table 8.5 and can exist without any cause. So, every effect key in this category is the possible event.

For example, 0106 represents "Set-up parameter(s) changed".

<b>Table 8.1</b>	
<b>40</b> - High-speed Present	<b>4A</b> - Thermal Demand Maximum
<b>41</b> - Standard Present	<b>4B</b> - Sliding Window Demand Maximum
<b>42</b> - Thermal Demand Present	<b>4C</b> - Hours - Net (Import - Export)
<b>43</b> - Sliding Window Demand Present	<b>4D</b> - Hours - Import
<b>44</b> - High-speed Minimum	<b>4E</b> - Hours - Export
<b>45</b> - Standard Minimum	<b>4F</b> - Hours - Total (Import + Export)
<b>46</b> - Thermal Demand Minimum	<b>63</b> - Predicted Sliding Window Demand Present
<b>47</b> - Sliding Window Demand Minimum	<b>67</b> - Predicted Sliding Window Demand Minimum
<b>48</b> - High-speed Maximum	<b>68</b> - Predicted Sliding Window Demand Maximum
<b>49</b> - Standard Maximum	

		<b>XX (Measurement method)</b>															
<b>YY</b>	<b>Meaning</b>	<b>40</b>	<b>41</b>	<b>42</b>	<b>43</b>	<b>44</b>	<b>45</b>	<b>46</b>	<b>47</b>	<b>48</b>	<b>49</b>	<b>4A</b>	<b>4B</b>	<b>4C</b>	<b>4D</b>	<b>4E</b>	<b>4F</b>
00	Volts LN Average	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
01	Volts LN Phase A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
02	Volts LN Phase B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
03	Volts LN Phase C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
04	Volts LL Average	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
05	Volts LL Phase AB	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
06	Volts LL Phase BC	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
07	Volts LL Phase CA	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				

08	Amps Average	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
09	Amps Phase A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0A	Amps Phase B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0B	Amps Phase C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0C	Amps Neutral	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0D	Reserved	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0E	Volts Imbalance (0-100)	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
0F	Amps Imbalance (0-100)		Y	Y	Y		Y	Y	Y		Y	Y	Y			
10	kW Total	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
11	kW Phase A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
12	kW Phase B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
13	kW Phase C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
14	KvaR Total		Y	Y	Y		Y	Y	Y		Y	Y	Y	Y	Y	Y
15	KvaR Phase A		Y	Y	Y		Y	Y	Y		Y	Y	Y			
16	kVAR Phase B		Y	Y	Y		Y	Y	Y		Y	Y	Y			
17	KvaR Phase C		Y	Y	Y		Y	Y	Y		Y	Y	Y			
18	kVA Total	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
19	kVA Phase A	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
1A	kVA Phase B	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
1B	kVA Phase C	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
1C	PF Total		Y	Y	Y		Y	Y	Y		Y	Y	Y			
1D	PF Phase A		Y	Y	Y		Y	Y	Y		Y	Y	Y			
1E	PF Phase B		Y	Y	Y		Y	Y	Y		Y	Y	Y			

1F	PF Phase C		Y	Y	Y		Y	Y	Y		Y	Y	Y				
20	Frequency	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y				
24	Phase Reversal (0 or 1)	Y	Y			Y	Y			Y	Y						
28	VAUX		Y	Y	Y		Y	Y	Y		Y	Y	Y				
30	I2T Avg. (0=Off, 1=On)	Y				Y				Y							
31	I2T Phase A (0=Off, 1=On)	Y				Y											
32	I2T Phase B (0=Off, 1=On)	Y				Y											
33	I2T Phase C (0=Off, 1=On)	Y				Y											
68	V1 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
69	V2 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6A	V3 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6B	VAUX HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6C	I1 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6D	I2 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6E	I3 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
6F	I4 HD - K-Factor		Y	Y	Y		Y	Y	Y		Y	Y	Y				
70	V1 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
71	V2 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
72	V3 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
73	VAUX HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
74	I1 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				

75	I2 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
76	I3 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
77	I4 HD - Total Odd		Y	Y	Y		Y	Y	Y		Y	Y	Y				
78	V1 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
79	V2 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7A	V3 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7B	VAUX HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7C	I1 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7D	I2 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7E	I3 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
7F	I4 HD - Total Even		Y	Y	Y		Y	Y	Y		Y	Y	Y				
80	V1 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
81	V2 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
82	V3 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
83	VAUX HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
84	I1 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
85	I2 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
86	I3 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
87	I4 HD - Total		Y	Y	Y		Y	Y	Y		Y	Y	Y				
88	V1 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
89	V2 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
8A	V3 HD - Harmonic		Y	Y	Y		Y	Y	Y		Y	Y	Y				

	#1																
8B	VAUX HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
8C	I1 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
8D	I2 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
8E	I3 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
8F	I4 HD - Harmonic #1		Y	Y	Y		Y	Y	Y		Y	Y	Y				
90	V1 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
91	V2 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
92	V3 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
93	VAUX HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
94	I1 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
95	I2 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
96	I3 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
97	I4 HD - Harmonic #2		Y	Y	Y		Y	Y	Y		Y	Y	Y				
98	V1 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y				
99	V2 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y				
9A	V3 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y				



9B	VAUX HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y			
9C	I1 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y			
9D	I2 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y			
9E	I3 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y			
9F	I4 HD - Harmonic #3		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A0	V1 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A1	V2 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A2	V3 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A3	VAUX HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A4	I1 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A5	I2 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A6	I3 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A7	I4 HD - Harmonic #4		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A8	V1 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y			
A9	V2 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y			
AA	V3 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y			
AB	VAUX HD -		Y	Y	Y		Y	Y	Y		Y	Y	Y			

	Harmonic #5																
AC	I1 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y				
AD	I2 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y				
AE	I3 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y				
AF	I4 HD - Harmonic #5		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B0	V1 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B1	V2 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B2	V3 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B3	VAUX HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B4	I1 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B5	I2 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B6	I3 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B7	I4 HD - Harmonic #6		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B8	V1 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
B9	V2 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
BA	V3 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
BB	VAUX HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				

BC	I1 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
BD	I2 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
BE	I3 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
BF	I4 HD - Harmonic #7		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C0	V1 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C1	V2 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C2	V3 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C3	VAUX HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C4	I1 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C5	I2 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C6	I3 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C7	I4 HD - Harmonic #8		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C8	V1 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y				
C9	V2 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y				
CA	V3 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y				
CB	VAUX HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y				

CC	I1 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y			
CD	I2 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y			
CE	I3 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y			
CF	I4 HD - Harmonic #9		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D0	V1 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D1	V2 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D2	V3 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D3	VAUX HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D4	I1 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D5	I2 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D6	I3 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D7	I4 HD - Harmonic #10		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D8	V1 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y			
D9	V2 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y			
DA	V3 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y			
DB	VAUX HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y			
DC	I1 HD - Harmonic		Y	Y	Y		Y	Y	Y		Y	Y	Y			

	#11																
DD	I2 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y				
DE	I3 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y				
DF	I4 HD - Harmonic #11		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E0	V1 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E1	V2 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E2	V3 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E3	VAUX HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E4	I1 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E5	I2 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E6	I3 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E7	I4 HD - Harmonic #12		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E8	V1 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y				
E9	V2 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y				
EA	V3 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y				
EB	VAUX HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y				
EC	I1 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y				

ED	I2 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y			
EE	I3 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y			
EF	I4 HD - Harmonic #13		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F0	V1 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F1	V2 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F2	V3 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F3	VAUX HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F4	I1 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F5	I2 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F6	I3 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F7	I4 HD - Harmonic #14		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F8	V1 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y			
F9	V2 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y			
FA	V3 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y			
FB	VAUX HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y			
FC	I1 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y			
FD	I2 HD - Harmonic		Y	Y	Y		Y	Y	Y		Y	Y	Y			

	#15																
FE	I3 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y				
FF	I4 HD - Harmonic #15		Y	Y	Y		Y	Y	Y		Y	Y	Y				

Table 8.2		
Effect Key (Hex)	Meaning	Ack/NoAck/Event
8000 - 8005	High-speed setpoints #1 to #6	2
8100 - 810A	Standard setpoints #1 to #11	2

Table 8.3	
Cause Key (Hex)	Meaning
8000 - 8005	High-speed setpoints #1 to #6
8100 - 810A	Standard setpoints #1 to #11

Table 8.4			
Effect Key (Hex)	Meaning	Supported Modes	Ack/NoAck/Event

<b>0211</b>	Clear all preset min/max logs	STD	3
<b>0212</b>	Clear real time preset min/max log	STD	3
<b>0213</b>	Clear RT TD preset min/max log	STD	3
<b>0214</b>	Clear SD preset min/max log	STD	3
<b>0215</b>	Clear HD V1 preset min/max log	STD	3
<b>0216</b>	Clear HD V2 preset min/max log	STD	3
<b>0217</b>	Clear HD V3 preset min/max log	STD	3
<b>0218</b>	Clear HD VX preset min/max log	STD	3
<b>0219</b>	Clear HD V1 TD preset min/max log	STD	3
<b>021A</b>	Clear HD V2 TD preset min/max log	STD	3
<b>021B</b>	Clear HD V3 TD preset min/max log	STD	3
<b>021C</b>	Clear HD VX TD preset min/max log	STD	3
<b>021D</b>	Clear HD I1 preset min/max log	STD	3
<b>021E</b>	Clear HD I2 preset min/max log	STD	3
<b>021F</b>	Clear HD I3 preset min/max log	STD	3
<b>0220</b>	Clear HD I4 preset min/max log	STD	3
<b>0221</b>	Clear HD I1 TD preset min/max log	STD	3
<b>0222</b>	Clear HD I2 TD preset min/max log	STD	3
<b>0223</b>	Clear HD I3 TD preset min/max log	STD	3
<b>0224</b>	Clear HD I4 TD preset min/max log	STD	3
<b>0225</b>	Clear PD preset min/max log	STD	3
<b>1000-1004</b>	Clear digital input counter 0-3 (Status input counter 1-4), 4=ALL	STD HS	3
<b>1100-1102</b>	Operate Relay #1 to 3	STD HS	3
<b>1C00-1C04</b>	same as 1000-1004	STD HS	3
<b>A200-A215</b>	Reset prog. min/max log #1 to 16	STD	3
<b>A400-A407</b>	Waveform Capture channels #1 to 8	STD HS	3



<b>A500</b>	Waveform Recorder	STD HS	3
<b>B900-08</b>	Reset registers	-	3

<b>Table 8.5</b>		
<b>Effect Key (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>0000</b>	No Action	3
<b>0100</b>	Meter Power (0=down, 1=up)	3
<b>0101</b>	Meter Firmware Change (firmware upgrade)	3
<b>0102</b>	Factory Reset (clearing of all parameters)	3
<b>0106</b>	Set-up parameter(s) changed	3
<b>0107</b>	Control has been initiated	3
<b>0108</b>	Labels have been changed	3
<b>0109</b>	Logs have been changed	3
<b>0110</b>	Internal non-volatile RAM failure	3
<b>0111</b>	Internal initialisation failure	3
<b>0112</b>	Internal Interrupt Service Routine failure	3
<b>0115</b>	Time-Of-Use (TOU) calendar corruption detected	3
<b>0116</b>	TOU calendar has been changed	3
<b>0117</b>	TOU profile has been changed	3
<b>0118</b>	TOU register configuration changed	3
<b>0120</b>	TOU register has been reset	-
<b>0121</b>	Time left	3
<b>0127</b>	User configurable task has been changed	3
<b>0129</b>	User selectable feature set has been changed	3
<b>0130</b>	PML programmable feature set has been changed	3
<b>0131</b>	PML programmable hardware options changed	3
<b>0133</b>	DST Set-up Changed	3

<b>0134</b>	DST time adjusted by	3
<b>0137</b>	AD configuration changed	-
<b>0138</b>	AD - no response from remote host (value = phone #)	-
<b>0139</b>	AD - remote host busy (value = phone #)	-
<b>0140</b>	AD - no answer or no carrier (value = phone #)	-
<b>0141</b>	AD - no dial tone (value = phone #)	-
<b>0142</b>	AD - modem command error (value = phone #)	-
<b>0143</b>	AD - unexpected modem response (value = phone #)	-
<b>0144</b>	AD - remote master station ACKed alarm message value phone #)	-
<b>0145</b>	AD - remote master station did not ACK alarm message (value = phone #)	-
<b>0146</b>	AD - sent alarm message to remote terminal (value = phone #)	-
<b>0147</b>	AD - reserved	-

## 9. Multilin SR469 Motor Management Relay (ML469)

<b>Table 9</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>0</b>	No Event / No Trip To Date	3
<b>1</b>	Incomplete Sequence Trip	0
<b>2</b>	Remote Trip	0
<b>3</b>	Speed Switch Trip	0
<b>4</b>	Load Shed Trip	0
<b>5</b>	Pressure Sw. Trip	0
<b>6</b>	Vibration Sw. Trip	0
<b>7</b>	Tachometer Trip	0
<b>8</b>	General Sw. A Trip	0
<b>9</b>	General Sw. B Trip	0

10	General Sw. C Trip	0
11	General Sw. D Trip	0
12	Overload Trip	0
13	Short Circuit Trip	0
14	Short Circuit Backup	0
15	Mechanical Jam Trip	0
16	Undercurrent Trip	0
17	Current U/B Trip	0
18	Ground Fault Trip	0
19	Ground Fault Backup	0
20	Differential Trip	0
21	Acceleration Trip	0
22	RTD 1 Trip	0
23	RTD 2 Trip	0
24	RTD 3 Trip	0
25	RTD 4 Trip	0
26	RTD 5 Trip	0
27	RTD 6 Trip	0
28	RTD 7 Trip	0
29	RTD 8 Trip	0
30	RTD 9 Trip	0
31	RTD 10 Trip	0
32	RTD 11 Trip	0
33	RTD 12 Trip	0
34	Undervoltage Trip	0
35	Overvoltage Trip	0
36	Phase Reversal Trip	0
37	Volt. Frequency Trip	0
38	Power Factor Trip	0

<b>39</b>	Reactive Power Trip	0
<b>40</b>	Underpower Trip	0
<b>41</b>	Analog I/P 1 Trip	0
<b>42</b>	Analog I/P 2 Trip	0
<b>43</b>	Analog I/P 3 Trip	0
<b>44</b>	Analog I/P 4 Trip	0
<b>45</b>	Single Phasing Trip	0
<b>51</b>	Remote AI arm	0
<b>52</b>	Pressure Sw. Alarm	0
<b>53</b>	Vibration Sw. Alarm	0
<b>54</b>	Counter Alarm	0
<b>55</b>	Tachometer Alarm	0
<b>56</b>	General Sw. A Alarm	0
<b>57</b>	General Sw. B Alarm	0
<b>58</b>	General Sw. C Alarm	0
<b>59</b>	General Sw. D Alarm	0
<b>60</b>	Thermal Model Alarm	0
<b>61</b>	Overload Alarm	0
<b>62</b>	Undercurrent Alarm	0
<b>63</b>	Current U/B Alarm	0
<b>64</b>	Ground Fault Alarm	0
<b>65</b>	RTD 1 Alarm	0
<b>66</b>	RTD 2 Alarm	0
<b>67</b>	RTD 3 Alarm	0
<b>68</b>	RTD 4 Alarm	0
<b>69</b>	RTD 5 Alarm	0
<b>70</b>	RTD 6 Alarm	0
<b>71</b>	RTD 7 Alarm	0
<b>72</b>	RTD 8 Alarm	0
<b>73</b>	RTD 9 Alarm	0

<b>74</b>	RTD 10 Alarm	0
<b>75</b>	RTD 11 Alarm	0
<b>76</b>	RTD 12 Alarm	0
<b>77</b>	Open RTD Alarm	0
<b>78</b>	Short/Low RTD Alarm	0
<b>79</b>	Undervoltage Alarm	0
<b>80</b>	Overvoltage Alarm	0
<b>81</b>	Volt. Frequency Alarm	0
<b>82</b>	Power Factor Alarm	0
<b>83</b>	Reactive Power Alarm	0
<b>84</b>	Underpower Alarm	0
<b>85</b>	Trip Counter Alarm	0
<b>86</b>	Starter Failed Alarm	0
<b>87</b>	Current Demand Alarm	0
<b>88</b>	kW Demand Alarm	0
<b>89</b>	kvar Demand Alarm	0
<b>90</b>	kVA Demand Alarm	0
<b>91</b>	Broken Rotor Bar	0
<b>92</b>	Analog I/P 1 Alarm	0
<b>93</b>	Analog I/P 2 Alarm	0
<b>94</b>	Analog I/P 3 Alarm	0
<b>95</b>	Analog I/P 4 Alarm	0
<b>101</b>	Service Alarm	0
<b>102</b>	Control Power Lost	0
<b>103</b>	Cont. Power Applied	3
<b>104</b>	Emergency Rst. Close	3
<b>105</b>	Emergency Rst. Open	3
<b>106</b>	Start While Blocked	3
<b>107</b>	Rel ay Not Inserted	0

<b>108</b>	Trip Coil Super.	3
<b>109</b>	Breaker Failure	3
<b>110</b>	Welded Contactor	0
<b>111</b>	Simulation Started	3
<b>112</b>	Simulation Stopped	3

## 10. Multilin SR489 Generator Management Relay (ML489)

<b>Table 10</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>0</b>	No Event	3
<b>1</b>	General Sw. A Trip	0
<b>2</b>	General Sw. B Trip	0
<b>3</b>	General Sw. C Trip	0
<b>4</b>	General Sw. D Trip	0
<b>5</b>	General Sw. E Trip	0
<b>6</b>	General Sw. F Trip	0
<b>7</b>	General Sw. G Trip	0
<b>8</b>	Sequential Trip	0
<b>9</b>	Tachometer Trip	0
<b>A</b>	UNKNOWN TRIP	0
<b>B</b>	UNKNOWN TRIP	0
<b>C</b>	Overload Trip	0
<b>D</b>	UNKNOWN TRIP	0
<b>E</b>	Neutral O/V Trip	0
<b>F</b>	Neutral UV(3rd) Trip	0
<b>14</b>	Differential Trip	0
<b>15</b>	Acceleration Trip	0
<b>16</b>	RTD 1 Trip	0

<b>17</b>	RTD 2 Trip	0
<b>18</b>	RTD 3 Trip	0
<b>19</b>	RTD 4 Trip	0
<b>1A</b>	RTD 5 Trip	0
<b>1B</b>	RTD 6 Trip	0
<b>1C</b>	RTD 7 Trip	0
<b>1D</b>	RTD 8 Trip	0
<b>1E</b>	RTD 9 Trip	0
<b>1F</b>	RTD 10 Trip	0
<b>20</b>	RTD 11 Trip	0
<b>21</b>	RTD 12 Trip	0
<b>22</b>	Undervoltage Trip	0
<b>23</b>	Overvoltage Trip	0
<b>24</b>	Phase Reversal Trip	0
<b>25</b>	Overfrequency Trip	0
<b>26</b>	Power Factor Trip	0
<b>27</b>	Reactive Power Trip	0
<b>28</b>	Underfrequency Trip	0
<b>29</b>	Analog I/P 1 Trip	0
<b>2A</b>	Analog I/P 2 Trip	0
<b>2B</b>	Analog I/P 3 Trip	0
<b>2C</b>	Analog I/P 4 Trip	0
<b>2D</b>	Single Phasing Trip	0
<b>2E</b>	Reverse Power Trip	0
<b>2F</b>	Field-Bkr Discrep.	0
<b>30</b>	Offline O/C Trip	0
<b>31</b>	Phase O/C Trip	0
<b>32</b>	Neg. Seq. O/C Trip	0
<b>33</b>	General Sw. A Alarm	0
<b>34</b>	General Sw. B Alarm	0

<b>35</b>	General Sw. C Alarm	0
<b>36</b>	General Sw. D Alarm	0
<b>37</b>	General Sw. E Alarm	0
<b>38</b>	General Sw. F Alarm	0
<b>39</b>	General Sw. G Alarm	0
<b>3B</b>	Tachometer Alarm	0
<b>3C</b>	Thermal Model Alarm	0
<b>3D</b>	Overload Alarm	0
<b>3E</b>	Underfrequency Alarm	0
<b>40</b>	Ground Fault Alarm	0
<b>41</b>	RTD 1 Alarm	0
<b>42</b>	RTD 2 Alarm	0
<b>43</b>	RTD 3 Alarm	0
<b>44</b>	RTD 4 Alarm	0
<b>45</b>	RTD 5 Alarm	0
<b>46</b>	RTD 6 Alarm	0
<b>47</b>	RTD 7 Alarm	0
<b>48</b>	RTD 8 Alarm	0
<b>49</b>	RTD 9 Alarm	0
<b>4A</b>	RTD 10 Alarm	0
<b>4B</b>	RTD 11 Alarm	0
<b>4C</b>	RTD 12 Alarm	0
<b>4D</b>	Open RTD Alarm	0
<b>4E</b>	Shor/Low RTD Alarm	0
<b>4F</b>	Undervoltage Alarm	0
<b>50</b>	Overvoltage Alarm	0
<b>51</b>	Overfrequency Alarm	0
<b>52</b>	Power Factor Alarm	0
<b>53</b>	Reactive Power Alarm	0



<b>54</b>	Low Fwd Power Alarm	0
<b>55</b>	Trip Counter Alarm	0
<b>56</b>	Breaker Fail Alarm	0
<b>57</b>	Current Demand Alarm	0
<b>58</b>	kW Demand Alarm	0
<b>59</b>	kvar Demand Alarm	0
<b>5A</b>	kVA Demand Alarm	0
<b>5B</b>	Broken Rotor Bar	0
<b>5C</b>	Analog I/P 1 Alarm	0
<b>5D</b>	Analog I/P 2 Alarm	0
<b>5E</b>	Analog I/P 3 Alarm	0
<b>5F</b>	Analog I/P 4 Alarm	0
<b>60</b>	Reverse Power Alarm	0
<b>61</b>	Incomplete Seq. Alarm	0
<b>62</b>	Negative Seq. Alarm	0
<b>63</b>	Ground O/C Alarm	0
<b>65</b>	Service Alarm	0
<b>66</b>	Control Power Lost	0
<b>67</b>	Cont. Power Applied	3
<b>68</b>	Thermal Reset Close	3
<b>69</b>	Emergency Rst. Open	3
<b>6A</b>	Start While Blocked	3
<b>6B</b>	Relay Not Inserted	3
<b>6C</b>	Trip Coil Super.	0
<b>6D</b>	Breaker Failure	0
<b>6E</b>	VT Fuse Failure	0
<b>6F</b>	Simulation Started	3
<b>70</b>	Simulation Stopped	3
<b>71</b>	Ground O/C Trip	0
<b>72</b>	Volts/Hertz Trip	0

<b>73</b>	Volts/Hertz Alarm	0
<b>74</b>	Low Fwd Power Trip	0
<b>75</b>	Inadvertent Energ.	0
<b>76</b>	Serial Start Command	3
<b>77</b>	Serial Stop Command	3
<b>78</b>	Input A Control	3
<b>79</b>	Input B Control	3
<b>7A</b>	Input C Control	3
<b>7B</b>	Input D Control	3
<b>7C</b>	Input E Control	3
<b>7D</b>	Input F Control	3
<b>7E</b>	Input G Control	3
<b>7F</b>	Neutral O/V Alarm	0
<b>80</b>	Neut. U/V 3 <sup>rd</sup> Alarm	0
<b>81</b>	Setpoint 1 Active	3
<b>82</b>	Setpoint 2 Active	3

## 11. Multilin SR565 Feeder Management Relay (ML565)

<b>Table 11</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>1</b>	Phase A Timed Overcurrent Trip	0
<b>2</b>	Phase B Timed Overcurrent Trip	0
<b>3</b>	Phase C Timed Overcurrent Trip	0
<b>4</b>	Ground Timed Overcurrent Trip	0
<b>5</b>	Phase A Instantaneous Trip	0
<b>6</b>	Phase B Instantaneous Trip	0
<b>7</b>	Phase C Instantaneous Trip	0
<b>8</b>	Ground Instantaneous Overcurrent Trip	0

11	Overvoltage Trip	0
12	Undervoltage Trip	2
13	Analog Input Trip	2
14	External Trip #1	2
15	External Trip #2	2
16	External Trip #3	2
17	External Trip #3	2
1B	Power Factor Trip	2
1C	Frequency Trip	2
1D	Voltage Phase Reversal Trip	2
1E	Phase Overcurrent Alarm	2
1F	Ground Overcurrent Alarm	2
20	Overvoltage Alarm	2
21	Undervoltage Alarm	2
22	Analog Input Alarm	3
23	Accumulated KA Alarm	3
24	Switch Alarm #1	3
25	Switch Alarm #2	3
26	Amps Demand Alarm	3
27	KW Demand Alarm	3
28	KVAR Demand Alarm	3
29	Power Factor Alarm	3
2A	Frequency Alarm	3
2B	Breaker Discrepancy Alarm	3
2C	Trip Coil Alarm	3
2D	MTM Communication Alarm	3
2E	Phase Overcurrent Alarm Reset	3
2F	Ground Overcurrent Alarm Reset	3
30	Overvoltage Alarm Reset	3
31	Undervoltage Alarm Reset	3

<b>32</b>	Analog Input Alarm Reset	3
<b>33</b>	Switch Alarm #1 Reset	3
<b>34</b>	Switch Alarm #2 Reset	3
<b>35</b>	Breaker Alarm Reset	3
<b>36</b>	Access Jumper Installed	3
<b>37</b>	Access Jumper Removed	3
<b>38</b>	Block Instantaneous Trip Enabled	3
<b>39</b>	Block Instantaneous Trip Disabled	3
<b>3A</b>	Block Timed Trips Enabled	3
<b>3B</b>	Block Timed Trips Disabled	3
<b>3C</b>	Curve Adjust Enabled	3
<b>3D</b>	Curve Adjust Disabled	3
<b>40</b>	Illegal Setpoint Access	3
<b>41</b>	System Manual Reset	3
<b>44</b>	Control Switch to Remote	3
<b>45</b>	Control Switch to Local	3
<b>4C</b>	Serial Communicaiton Trip	3
<b>4D</b>	Serial Communication Close	3

## 12. Multilin Power Quality Meter (MLPQM)

<b>Table 12</b>		
<b>Event Code (Hex)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>0</b>	No Event	3
<b>1</b>	Clear Event Record	3
<b>2</b>	Power On	3
<b>3</b>	Power Off	3
<b>4</b>	Reset	3
<b>5</b>	Setpoint Access Enabled	3

<b>6</b>	Switch A Alarm	0
<b>7</b>	Switch B Alarm	0
<b>8</b>	Switch C Alarm	0
<b>9</b>	Switch D Alarm	0
<b>A</b>	COM1 Fail Alarm	0
<b>B</b>	COM2 Fail Alarm	0
<b>C</b>	Self Test Alarm	0
<b>D</b>	Clock Not Set Alarm	0
<b>E</b>	Parameters Not Set Alarm	0
<b>F</b>	Underfrequency Alarm	0
<b>10</b>	Overfrequency Alarm	0
<b>11</b>	Undercurrent Alarm	0
<b>12</b>	Overcurrent Alarm	0
<b>13</b>	Neutral Overcurrent Alarm	0
<b>14</b>	Undervoltage Alarm	0
<b>15</b>	Overvoltage Alarm	0
<b>16</b>	Current Unbalance Alarm	0
<b>17</b>	Voltage Unbalance Alarm	0
<b>18</b>	Phase Reversal Alarm	0
<b>19</b>	Power Factor Lead 1 Alarm	0
<b>1A</b>	Power Factor Lead 2 Alarm	0
<b>1B</b>	Power Factor Lag 1 Alarm	0
<b>1C</b>	Power Factor Lag 2 Alarm	0
<b>1D</b>	Positive kW Alarm	0
<b>1E</b>	Negative kW Alarm	0
<b>1F</b>	Positive kvar Alarm	0
<b>20</b>	Negative kvar Alarm	0
<b>21</b>	Positive kW Demand Alarm	0
<b>22</b>	Positive kvar Demand Alarm	0

<b>23</b>	Negative kW Demand Alarm	0
<b>24</b>	Negative kvar Demand Alarm	0
<b>25</b>	kVA Demand Alarm	0
<b>26</b>	Phase A Current Demand Alarm	0
<b>27</b>	Phase B Current Demand Alarm	0
<b>28</b>	Phase C Current Demand Alarm	0
<b>29</b>	Neutral Current Demand Alarm	0
<b>2A</b>	Pulse Input 1 Alarm	0
<b>2B</b>	Current THD Alarm	0
<b>2C</b>	Voltage THD Alarm	0
<b>2D</b>	Analog Input Main Alarm	0
<b>2E</b>	Analog Input Alternate Alarm	0
<b>2F</b>	Data Log 1 Alarm	0
<b>30</b>	Data Log 2 Alarm	0
<b>31</b>	Switch A Alarm Clear	3
<b>32</b>	Switch B Alarm Clear	3
<b>33</b>	Switch C Alarm Clear	3
<b>34</b>	Switch D Alarm Clear	3
<b>35</b>	COM1 Fail Alarm Clear	3
<b>36</b>	COM2 Fail Alarm Clear	3
<b>37</b>	Self Test Alarm Clear	3
<b>38</b>	Clock Not Set Alarm Clear	3
<b>39</b>	Parameters Not Set Alarm Clear	3
<b>3A</b>	Underfrequency Alarm Clear	3
<b>3B</b>	Overfrequency Alarm Clear	3
<b>3C</b>	Undercurrent Alarm Clear	3
<b>3D</b>	Overcurrent Alarm Clear	3
<b>3E</b>	Neutral Overcurrent Alarm Clear	3
<b>3F</b>	Undervoltage Alarm Clear	3
<b>40</b>	Overvoltage Alarm Clear	3

<b>41</b>	Current Unbalance Alarm Clear	3
<b>42</b>	Voltage Unbalance Alarm Clear	3
<b>43</b>	Phase Reversal Alarm Clear	3
<b>44</b>	Power Factor Lead 1 Alarm Clear	3
<b>45</b>	Power Factor Lead 2 Alarm Clear	3
<b>46</b>	Power Factor Lag 1 Alarm Clear	3
<b>47</b>	Power Factor Lag 2 Alarm Clear	3
<b>48</b>	Positive kW Alarm Clear	3
<b>49</b>	Negative kW Alarm Clear	3
<b>4A</b>	Positive kvar Alarm Clear	3
<b>4B</b>	Negative kvar Alarm Clear	3
<b>4C</b>	Positive kW Demand Alarm Clear	3
<b>4D</b>	Positive kvar Demand Alarm Clear	3
<b>4E</b>	Negative kW Demand Alarm Clear	3
<b>4F</b>	Negative kvar Demand Alarm Clear	3
<b>50</b>	kVA Demand Alarm Clear	3
<b>51</b>	Phase A Current Demand Alarm Clear	3
<b>52</b>	Phase B Current Demand Alarm Clear	3
<b>53</b>	Phase C Current Demand Alarm Clear	3
<b>54</b>	Neutral Current Demand Alarm Clear	3
<b>55</b>	Pulse Input 1 Alarm Clear	3
<b>56</b>	Current THD Alarm Clear	3
<b>57</b>	Voltage THD Alarm Clear	3
<b>58</b>	Analog Input Main Alarm Clear	3
<b>59</b>	Analog Input Alternate Alarm Clear	3
<b>5A</b>	Data Log 1 Alarm Clear	3
<b>5B</b>	Data Log 2 Alarm Clear	3
<b>5C</b>	Pulse Input 2 Alarm	0
<b>5D</b>	Pulse Input 3 Alarm	0

<b>5E</b>	Pulse Input 4 Alarm	0
<b>5F</b>	Pulse Count Total Alarm	0
<b>60</b>	Pulse Input 2 Alarm Clear	3
<b>61</b>	Pulse Input 3 Alarm Clear	3
<b>62</b>	Pulse Input 4 Alarm Clear	3
<b>63</b>	Pulse Input Total Alarm Clear	3
<b>64</b>	Time Alarm	0
<b>65</b>	Time Alarm Clear	3
<b>66</b>	Trace Memory Trigger	3

### 13. Multilin SR745 Transformer Management Relay (ML745)

The EventCode for ML745 is composed of 4 hexadecimal digits (NNNN). The m digit represents the type of event. The lower three digits represent the cause of are listed in the following two tables. Any combinations between these two table event. For example,

Event Code	Meaning
3003	Pickup W1 Phase Time OC
4070	Operate Setpoint Group 1

In the eventpvt.ini file, each type of event is defined as either an acknowledged or an event. The format is as follows:

M6000=2

M5000=2

M4000=0

M3000=0

M2000=3

M1000=3



where M# indicates bit mask. For example M3000=0, all event codes which belong to type 3 (Pickup) will report as an Acknowledgable alarm. To set an event code 3004 event, for instance, put 3004=3 before mask codes,

3004=3

M6000=2

M5000=2

M4000=0

M3000=0

M2000=3

M1000=3

then, event which belongs to event type 3 (Pickup) will report as an acknowledged except event code 3004 which will report as an event in an Eventlogger.

<b>Table 13.1</b>		
<b>Most significant Hexadecimal bit of the EventCode (Event Type)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>1</b>	Off	3
<b>2</b>	On	3
<b>3</b>	Pickup	0
<b>4</b>	Operate	0
<b>5</b>	Dropout	2
<b>6</b>	Error!	2

<b>Table 13.2</b>	
<b>Lower 3 Hexadecimal</b>	<b>Meaning</b>

<b>bit of the EventCode (Cause of Event)</b>	
<b>000</b>	No Event
<b>001</b>	Percent Differential
<b>002</b>	Inst Differential
<b>003</b>	W1 Phase Time OC
<b>004</b>	W2 Phase Time OC
<b>005</b>	W3 Phase Time OC
<b>006</b>	W1 Phase Inst 1 OC
<b>007</b>	W2 Phase Inst 1 OC
<b>008</b>	W3 Phase Inst 1 OC
<b>009</b>	W1 Phase Inst 2 OC
<b>00A</b>	W2 Phase Inst 2 OC
<b>00B</b>	W3 Phase Inst 2 OC
<b>00C</b>	W1 Neutral Time OC
<b>00D</b>	W2 Neutral Time OC
<b>00E</b>	W3 Neutral Time OC
<b>00F</b>	W1 Neutral Inst 1 OC
<b>010</b>	W2 Neutral Inst 1 OC
<b>011</b>	W3 Neutral Inst 1 OC
<b>012</b>	W1 Neutral Inst 2 OC
<b>013</b>	W2 Neutral Inst 2 OC
<b>014</b>	W3 Neutral Inst 2 OC
<b>015</b>	W1 Ground Time OC
<b>016</b>	W2 Ground Time OC
<b>017</b>	W3 Ground Time OC
<b>018</b>	W1 Ground Inst 1 OC
<b>019</b>	W2 Ground Inst 1 OC
<b>01A</b>	W3 Ground Inst 1 OC

<b>01B</b>	W1 Ground Inst 2 OC
<b>01C</b>	W2 Ground Inst 2 OC
<b>01D</b>	W3 Ground Inst 2 OC
<b>01E</b>	W1 Restd Gnd Fault
<b>01F</b>	W2 Restd Gnd Fault
<b>020</b>	W3 Restd Gnd Fault
<b>021</b>	W1 Restd Gnd Trend
<b>022</b>	W2 Restd Gnd Trend
<b>023</b>	W3 Restd Gnd Trend
<b>024</b>	W1 Neg Seq Time OC
<b>025</b>	W2 Neg Seq Time OC
<b>026</b>	W3 Neg Seq Time OC
<b>027</b>	W1 Neg Seq Inst OC
<b>028</b>	W2 Neg Seq Inst OC
<b>029</b>	W3 Neg Seq Inst OC
<b>02A</b>	Underfrequency 1
<b>02B</b>	Underfrequency 2
<b>02C</b>	Frequency Decay 1
<b>02D</b>	Frequency Decay 2
<b>02E</b>	Frequency Decay 3
<b>02F</b>	Frequency Decay 4
<b>030</b>	Overfrequency
<b>031</b>	5 <sup>th</sup> Harmonic Level
<b>032</b>	Volts-Per-Hertz 1
<b>033</b>	Volts-Per-Hertz 2
<b>034</b>	W1 THD Level
<b>035</b>	W2 THD Level
<b>036</b>	W3 THD Level
<b>037</b>	W1 Harmonic Derating
<b>038</b>	W2 Harmonic Derating

<b>039</b>	W3 Harmonic Derating
<b>03A</b>	Hottest Spot Limit
<b>03B</b>	Loss-Of-Life Limit
<b>03C</b>	Analog Level 1
<b>03D</b>	Analog Level 2
<b>03E</b>	W1 Current Demand
<b>03F</b>	W2 Current Demand
<b>040</b>	W3 Current Demand
<b>041</b>	Transformer Overload
<b>042</b>	Logic Input 1
<b>043</b>	Logic Input 2
<b>044</b>	Logic Input 3
<b>045</b>	Logic Input 4
<b>046</b>	Logic Input 5
<b>047</b>	Logic Input 6
<b>048</b>	Logic Input 7
<b>049</b>	Logic Input 8
<b>04A</b>	Logic Input 9
<b>04B</b>	Logic Input 10
<b>04C</b>	Logic Input 11
<b>04D</b>	Logic Input 12
<b>04E</b>	Logic Input 13
<b>04F</b>	Logic Input 14
<b>050</b>	Logic Input 15
<b>051</b>	Logic Input 16
<b>052</b>	Virtual Input 1
<b>053</b>	Virtual Input 2
<b>054</b>	Virtual Input 3
<b>055</b>	Virtual Input 4

<b>056</b>	Virtual Input 5
<b>057</b>	Virtual Input 6
<b>058</b>	Virtual Input 7
<b>059</b>	Virtual Input 8
<b>05A</b>	Virtual Input 9
<b>05B</b>	Virtual Input 10
<b>05C</b>	Virtual Input 11
<b>05D</b>	Virtual Input 12
<b>05E</b>	Virtual Input 13
<b>05F</b>	Virtual Input 14
<b>060</b>	Virtual Input 15
<b>061</b>	Virtual Input 16
<b>062</b>	Output Relay 1
<b>063</b>	Output Relay 2
<b>064</b>	Output Relay 3
<b>065</b>	Output Relay 4
<b>066</b>	Output Relay 5
<b>067</b>	Output Relay 6
<b>068</b>	Output Relay 7
<b>069</b>	Output Relay 8
<b>06A</b>	Self-Test Relay
<b>06B</b>	Virtual Output 1
<b>06C</b>	Virtual Output 2
<b>06D</b>	Virtual Output 3
<b>06E</b>	Virtual Output 4
<b>06F</b>	Virtual Output 5
<b>070</b>	Setpoint Group 1
<b>071</b>	Setpoint Group 2
<b>072</b>	Setpoint Group 3
<b>073</b>	Setpoint Group 4

<b>074</b>	Test Mode
<b>075</b>	Simulation Disabled
<b>076</b>	Simulation Prefault
<b>077</b>	Simulation Fault
<b>078</b>	Simulation Playback
<b>079</b>	Logic Input Reset
<b>07A</b>	Front Panel Reset
<b>07B</b>	Comm Port Reset
<b>07C</b>	Manual Trace Trigger
<b>07D</b>	Auto Trace Trigger
<b>07E</b>	Control Power
<b>07F</b>	Logic Input Power
<b>080</b>	Analog Output Power
<b>081</b>	Unit Not Calibrated
<b>082</b>	EEPROM Memory
<b>083</b>	Real-Time Clock
<b>084</b>	Battery
<b>085</b>	Emulation Software
<b>086</b>	Int Temperature
<b>087</b>	Flexlogic Equation
<b>088</b>	DSP Processor
<b>089</b>	Bad Xfmr Settings
<b>08A</b>	IRIG-B Signal
<b>08B</b>	Setpt Access Denied

#### **14. Multilin SR750 Feeder Management Relay (ML750)**

The EventCode for ML750 is composed of 4 hexadecimal digits. The most significant digit represents the event type. The next significant digit represents phase or what tri logic input, if applicable. The last 2 hexadecimal digits represent cause of event function. They are listed in three different tables below. Any combination among

tables with the same event type forms an event. For example,

Event Code	Meaning
1003	General Breaker opened
2418	Pick up Phase C Overvoltage1

In the eventpvt.ini file, each type of event is defined as either an acknowledged alarm or an event. The format is as follows:

M8000=2

M7000=2

M6000=3

M5000=2

where M# indicates bit mask. For example M6000=3, all event codes which belong to type 6 (Logic Input) will report as an event. To set an event code 6003 as an acknowledged alarm, for instance, put 6003=0 before mask codes,

6003=0

M8000=2

M7000=2

M6000=3

M5000=2

then, event which belongs to event type 6 (Logic Input) will report as an event. Event code 6003 which will report as an acknowledged alarm in an Eventlogger.

<b>Table 14.1</b>		
<b>Most significant Hexadecimal bit of the EventCode (Event Type)</b>	<b>Meaning</b>	<b>Ack/NoAck/Event</b>
<b>1</b>	General	3
<b>2</b>	Pickup	0
<b>3</b>	Trip	0
<b>4</b>	Alarm	0
<b>5</b>	Control	2
<b>6</b>	Logic Input	3
<b>7</b>	Self-Test Warning	2
<b>8</b>	Dropout	2



<b>Table 14.2</b>		
<b>Next significant Hexadecimal bit of the EventCode (Event Type)</b>	<b>Meaning</b>	<b>Event Type</b>
<b>EVENT TYPE: PICKUP, TRIP, ALARM, CONTROL, DROPOUT</b>		
<b>1</b>	Phase A (0 = No Fault, 1 = Fault)	2,3,4,5,8
<b>2</b>	Phase B (0 = No Fault, 1 = Fault)	2,3,4,5,8
<b>4</b>	Phase C (0 = No Fault, 1 = Fault)	2,3,4,5,8
<b>LOGIC INPUT EVENT TYPE:</b>		
<b>1</b>	Contact State (0 = Not Asserted(Off), 1 = Asserted(On))	6
<b>2</b>	Virtual State (0 = Not Asserted(Off), 1 = Asserted(On))	6
<b>4</b>	Logic Input State (0 = Not Asserted(Off), 1 = Asserted(On))	6

<b>Table 14.3</b>		
<b>Last 2 Hexadecimal digits of the EventCode</b>	<b>Meaning</b>	<b>Event Type</b>
<b>EVENT TYPE: GENERAL</b>		
<b>01</b>	Control Power Off	1
<b>02</b>	Control Power On	1
<b>03</b>	Breaker Opened	1
<b>04</b>	Breaker Closed	1
<b>05</b>	Breaker Not Connected	1
<b>06</b>	Reset	1
<b>07</b>	Open Breaker	1

08	Close Breaker	1
09	Set Time	1
10	Set Date	1
11	Trigger Trace Memory	1
12	Clear Energy Use	1
13	Clear Max Demand	1
14	Clear Event Recorder	1
15	Reset Trip Counter	1
16	Reset Arcing Current	1
17	Display Override Message	1
18	Trigger Data Logger	1
20	Transfer Initiated	1
21	Transfer Not Ready	1
22	Close From Transfer	1
23	Trip From Transfer	1
30	Reclosure 1 SR760 ONLY!	1
31	Reclosure 2 SR760 ONLY!	1
32	Reclosure 3 SR760 ONLY!	1
33	Reclosure 4 SR760 ONLY!	1
34	Reclosure Lockout SR760	1
35	Shots Reduced to 3 SR760	1
36	Shots Reduced to 2 SR760	1
37	Shots Reduced to 1 SR760	1
38	Shots Reduced to L/O SR7	1
39	Autoreclose Reset SR760	1
40	Setpoint Group 1 Active	1
41	Setpoint Group 2 Active	1
42	Setpoint Group 3 Active	1
43	Setpoint Group 4 Active	1

<b>EVENT TYPE: PICKUP, TRIP, ALARM, CONTROL, DROPOUT</b>		
<b>1</b>	Phase Time Overcurrent	2,3,4,5,8
<b>2</b>	Phase Loset Overcurrent	2,3,4,5,8
<b>3</b>	Phase Hiset Overcurrent	2,3,4,5,8
<b>4</b>	Ground Time Overcurrent	2,3,4,5,8
<b>5</b>	Ground Loset Overcurrent	2,3,4,5,8
<b>6</b>	Ground Hiset Overcurrent	2,3,4,5,8
<b>7</b>	Neutral Time Overcurrent	2,3,4,5,8
<b>8</b>	Neutral Loset Overcurrent	2,3,4,5,8
<b>9</b>	Neutral Hiset Overcurrent	2,3,4,5,8
<b>10</b>	Phase Directional Blocking	2,3,4,5,8
<b>11</b>	Ground Directional Blocking	2,3,4,5,8
<b>12</b>	Manual Close Feature Blocking	2,3,4,5,8
<b>13</b>	Cold Load Pickup Feature Blocking	2,3,4,5,8
<b>14</b>	Bus Undervoltage 1	2,3,4,5,8
<b>15</b>	Bus Undervoltage 2	2,3,4,5,8
<b>16</b>	Line Undervoltage 3	2,3,4,5,8
<b>17</b>	Line Undervoltage 4	2,3,4,5,8
<b>18</b>	Overvoltage 1	2,3,4,5,8
<b>19</b>	Overvoltage 2	2,3,4,5,8
<b>20</b>	Underfrequency 1	2,3,4,5,8
<b>21</b>	Underfrequency 2	2,3,4,5,8
<b>22</b>	Phase Current Level	2,3,4,5,8
<b>23</b>	Neutral Current Level	2,3,4,5,8
<b>24</b>	Power Factor 1	2,3,4,5,8
<b>25</b>	Power Factor 2	2,3,4,5,8
<b>26</b>	Out Of Synchronization	2,3,4,5,8
<b>27</b>	Current Demand	2,3,4,5,8

28	Real Power Demand	2,3,4,5,8
29	Reactive Power Demand	2,3,4,5,8
30	Apparent Power Demand	2,3,4,5,8
31	Analog Input Threshold 1	2,3,4,5,8
32	Analog Input Threshold 2	2,3,4,5,8
33	Analog Input Rate of Change 1	2,3,4,5,8
34	Analog Input Rate of Change 2	2,3,4,5,8
35	Overfrequency	2,3,4,5,8
36	Trip Counter	2,3,4,5,8
37	Arcing Current	2,3,4,5,8
38	VT Failure	2,3,4,5,8
39	Breaker Failure	2,3,4,5,8
40	Breaker Operation	2,3,4,5,8
41	Trip Coil Failure	2,3,4,5,8
42	Close Coil Failure	2,3,4,5,8
43	User Input A	2,3,4,5,8
44	User Input B	2,3,4,5,8
45	User Input C	2,3,4,5,8
46	User Input D	2,3,4,5,8
47	User Input E	2,3,4,5,8
48	User Input F	2,3,4,5,8
49	User Input G	2,3,4,5,8
50	User Input H	2,3,4,5,8
51	Negative Sequence Instantaneous Overcurrent	2,3,4,5,8
52	Negative Sequence Time Overcurrent	2,3,4,5,8
53	Negative Sequence Overvoltage	2,3,4,5,8
54	Undervoltage Restoration	2,3,4,5,8
55	Underfrequency Restoration	2,3,4,5,8
56	Phase Time Overcurrent 2	2,3,4,5,8
57	Frequency Decay	2,3,4,5,8

58	Negative Sequence is Reverse	2,3,4,5,8
59	Sensitive Ground Instantaneous Overcurrent	2,3,4,5,8
60	Sensitive Ground Time Overcurrent	2,3,4,5,8
61	Sensitive Ground Direction is Reverse	2,3,4,5,8
<b>EVENT TYPE: LOGIC INPUT</b>		
1	52a Contact	6
2	52b Contact	6
3	Breaker Connected	6
10	Local Mode	6
11	Remote Reset	6
12	Remote Open	6
13	Remote Close	6
14	Cold Load Pickup	6
15	Setpoint Group 2	6
16	Setpoint Group 3	6
17	Setpoint Group 4	6
20	User Input A	6
21	User Input B	6
22	User Input C	6
23	User Input D	6
24	User Input E	6
25	User Input F	6
26	User Input G	6
27	User Input H	6
30	Block 1 TRIP	6
31	Block 2 CLOSE	6
32	Block Reset	6
33	Block Undervolt 1	6

34	Block Undervolt 2	6
35	Block Undervolt 3	6
36	Block Undervolt 4	6
37	Block Underfreq 1	6
38	Block Underfreq 2	6
39	Bypass Synchrochk	6
40	Block Trip Count	6
41	Block Negative Sequence Overvoltage	6
42	Block Restoration	6
43	Block Freq Decay	6
50	Block All OC	6
51	Block Phase OC	6
52	Block Ground OC	6
53	Block Neutral OC	6
54	Block Phs Time OC 1	6
55	Block Phs Loset OC 1	6
56	Block Phs Hiset OC 2	6
57	Block Gnd Time OC	6
58	Block Gnd Loset OC	6
59	Block Gnd Hiset OC 2	6
60	Block Ntr Time OC 1	6
61	Block Ntr Loset OC1	6
62	Block Ntr Hiset OC 2	6
63	Block Negative Sequence Instantaneous Overcurrent	6
64	Block Negative Sequence Time Overcurrent	6
65	Blk Phs Time OC 2	6
70	Selected To Trip	6
71	UV On Other Source	6
72	Incomer 1 Closed	6

73	Incomer 2 Closed	6
74	BusTie Connected	6
75	Bus Tie Closed	6
76	Block Transfer	6
77	Xmfr Lockout	6
78	Source Trip	6
79	ClS From Incomer 1	6
80	ClS From Incomer 2	6
90	Initiate Reclosure	6
91	Cancel Reclosure	6
92	Block Reclsource	6
100	Trigger Trace Mem	6
101	Simulate Fault	6
102	Trigger Data Log	6
103	Block All Sensitive Ground Overcurrent	6
104	Block Sensitive Ground Instantaneous O/C	6
105	Block Sensitive Ground Time O/C	6
<b>EVENT TYPE: SELF-TEST WARNING</b>		
		7
1	Relay Not Ready	7
2	Analog Output +32V	7
3	FLASH Corrupt	7
4	EEPROM Corrupt	7
5	Dry Contact +32V	7
6	A/D Virtual Ground	7
7	Internal RS485	7
8	Internal Temperature	7
9	Clock Not Set	7
10	Prototype Software	7

11	Not Calibrated	7
12	Force Relays	7
13	Force Analog Out	7
14	Simulation Mode	7
15	Pickup Test	7
16	Factory Service Mode	7
17	IRIG-B Failure	7

**Keywords**

PMCS 5.1 devices, event codes

**Related Notes**

none

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