

Appendix F. Network Variables

NETWORK VARIABLE TYPES

This section provides information on the following types of FT-10 network variables:

- Message Tags (msg) – used to send large messages (over 30 bytes) (see Table F-1).
- Network configuration input (nci) – used to adjust device settings with a configuration Plug-In (see Table F-2). nci variables are LONMARK[®] compliant.
- Network variable input (nvi) – input variable which produces a physical output from a device (see Table F-3). Input variables make a device do something.
- Network variable output (nvo) – output variable produced by some physical input to a device (see Table F-4). Output variables tell another device what the original device is doing.

Tables F-2, F-3, and F-4 include the following variable operating types.

- Standard Network Variable Type (SNVT):
 - SNVT State – An array of 16 bits used as one variable to report on or control a set of variables. They can be either inputs or outputs. Each bit in the variable has a specific meaning. A SNVT State variable is used to show the status of something. They are often configurable with InPower[™] software.
 - SNVT Switch – Input or output variable that has a value part and a state part. A SNVT

Switch variable causes something to happen. In most cases, only the state part is used by CPG.

- Standard Configuration Protocol Type (SCPT) – a specialized SNVT used to configure a device.
- User-defined Network Variable Type (UNVT) – CPG-defined variables used with DMC and other monitoring software products. UNVT variables are used to report on the state or status of a large number of engine or generator parameters.

The tables in this section refer to the following FT-10 devices:

- GCM – Genset Communications Module used with PCC 3100 controls
- GLC – Genset LONWORKS Card used with PCC 3200 controls
- PCC 2100 NCM – Network Communications Module used with PCC 2100 controls
- PowerCommand[®] ATS NCM – Network Communications Module used with a PowerCommand ATS (OTPC/BTPC)
- CCM-G – Control Communications Module used with gensets equipped with a Detector[™] or DK type of control
- CCM-T – Control Communications Module used with a non-PCC transfer switch
- DIM – Digital I/O Module
- LSA – LONWORKS[®] System Annunciator

Message Tags

Table F-1 is a list of all Message Tags used with the FT-10 PowerCommand network.

TABLE F-1. MESSAGE TAGS

NAME	COMMUNICATES WITH	DESCRIPTION	USED BY
msg_in	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	The name for an incoming message object that is built into Neuron C. It does not need to be declared in the application and cannot be removed. All explicit messages (GOAL, Network Management, Service Pin Messages, etc.) are received by msg_in.	Network Gateway
msg_local		Used to set a GOAL response to a network interface. It is needed because every outgoing message must reference a message tag name. Since outgoing messages use explicit addressing, this message tag is not actually used to deliver the message.	InPower (GOAL protocol)
msg_remote	Network Gateway	Used to send alarms to remote host PCs (PCs that are connected through a modem) through an SLTA-10 which uploads it to the host. The msg_remote tag may only be bound to one SLTA-10. Alarm delivery to up to five hosts is accomplished using the phone directory located in the SLTA-10. Remote alarm delivery is initiated once the alarm has been broadcast to the domain.	Bound to msg_in

Configuration Inputs

Table F-2 includes information on all Configuration Inputs used with the FT-10 PowerCommand network.

TABLE F-2. NETWORK CONFIGURATION INPUTS

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION																
nciMaxSendTime	SCPTmaxSendTime (SNVT_time_sec)	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	This configuration network variable is required for the LONMARK generator functional profile. It is declared in the node but not used. <i>nciMinSendTime</i> is used to set the logical Update Interval in the controller. Valid range: 1.0 – 3600.0 seconds (values outside of this range disable updates)																
nciMinSendTime	SCPTminSendTime (SNVT_time_sec)	DIM, GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	For CCM-G and CCM-T, this network variable input sets the interval at which the genset communications module reads the analog inputs and propagates network variable outputs. Setting this variable to zero disables reading the analog inputs and propagation. For all other FT-10 network devices, this network variable sets the maximum time that will expire before the analog network variable outputs are propagated. Setting this variable to zero disables automatic updates. Valid range: 1.0 – 3600.0 seconds (values outside of this range disable updates). The default is 2.0 seconds.																
nciNetConfig	SNVT_config_src	GCM, GLC, PCC 2100 NCM, DIM, LSA, PC ATS NCM, CCM-G, CCM-T	This configuration variable sets the mode of the node installation. When set to “LOCAL” (default), the device is configured for self-installation. When set to “EXTERNAL,” the device is configured for installation by a network management tool. The device will self-install if this input variable is set to “LOCAL” and the node address (DIP switch setting) is non-zero. This input is required for self-installation. Valid Range: 0 (LOCAL), 1 (EXTERNAL)																
nciNodeConfig1	UNVT_gcm_cfg1 (30 bytes)	GCM	Used to configure the faults for <i>nvoAnnunCustom</i> . Only 15 lamps (2–16) may be configured. The first lamp (lamp1) of <i>nvoAnnunCustom</i> is reserved for “Check Genset” (common alarm). <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>lamp2</td> <td>u16</td> <td>2</td> <td>Fault code for <i>nvoAnnunCustom.bit1</i></td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td>lamp16</td> <td>u16</td> <td>2</td> <td>Fault code for <i>nvoAnnunCustom.bit15</i></td> </tr> </tbody> </table> Valid Range: 0–500	Field	Type	Size	Description	lamp2	u16	2	Fault code for <i>nvoAnnunCustom.bit1</i>	lamp16	u16	2	Fault code for <i>nvoAnnunCustom.bit15</i>
Field	Type	Size	Description																
lamp2	u16	2	Fault code for <i>nvoAnnunCustom.bit1</i>																
...																
lamp16	u16	2	Fault code for <i>nvoAnnunCustom.bit15</i>																

Variable Inputs

Table F-3 includes information on all Variable Inputs used with the FT-10 PowerCommand network.

TABLE F-3. NETWORK VARIABLE INPUTS

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nvi4PointAnnunA	SNVT_state	LSA	Input that allows other devices to control annunciator lamps 1 thru 4 with a single variable update (bit 0 relates to lamp 1). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi4PointAnnunB	SNVT_state	LSA	Input that allows you to control annunciator lamps 5 thru 8 with a single variable update (bit 0 relates to lamp 5). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi4PointAnnunC	SNVT_state	LSA	Input that allows you to control annunciator lamps 9 thru 12 with a single variable update (bit 0 relates to lamp 9). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi4PointAnnunD	SNVT_state	LSA	Input that allows you to control annunciator lamps 13 thru 16 with a single variable update (bit 0 relates to lamp 13). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi4PointAnnunE	SNVT_state	LSA	Input that allows you to control annunciator lamps 17 thru 20 with a single variable update (bit 0 relates to lamp 17). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi4RelayA	SNVT_state	DIM	Input that allows you to control relays 1 through 4 with a single variable update.
nvi4RelayB	SNVT_state	DIM	Input that allows you to control relays 5 through 8 with a single variable update.
nvi4RelayC	SNVT_state	DIM	Input that allows you to control relays 9 through 12 with a single variable update.
nvi4RelayD	SNVT_state	DIM	Input that allows you to control relays 13 through 16 with a single variable update.
nvi8PointAnnunA	SNVT_state	LSA	Input that allows you to control annunciator lamps 1 thru 8 with a single variable update (<i>bit0</i> relates to lamp 1). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nvi8PointAnnunB	SNVT_state	LSA	Input that allows you to control annunciator lamps 9 thru 16 with a single variable update (*bit0 relates to lamp 9). Each bit of the structure must be OR'd with all other network variable input (fields) which control each lamp. bit x = 0 (Off) or 1 (On)
nvi8RelayA	SNVT_state	DIM	Input that allows you to control relays 1 thru 8 with a single variable update.
nvi8RelayB	SNVT_state	DIM	Input that allows you to control relays 9 thru 16 with a single variable update (bit 0 controls relay 1).
nvi16PointAnnunA	SNVT_state	LSA	Input that allows you to control annunciator lamps 1 thru 16 with a single variable update (bit0 controls lamp 1). This input must be connected to a genset network variable. State = 0 (Off) or 1 (On)
nvi16PointAnnunB	SNVT_state	LSA	Input that allows you to control annunciator lamps 1 thru 16 with a single variable update (bit 0 controls lamp 1). This input must be connected to a transfer switch network variable. State = 0 (Off) or 1 (On)
nvi16RelayA	SNVT_state	DIM	Input sent by a genset that allows you to control all 16 relays with a single variable update. Each bit of the structure must be evaluated for each update. bit0 (MSB) controls Relay 1.
nvi16RelayB	SNVT_state	DIM	Input sent by an ATS that allows you to control all 16 relays with a single variable update. Each bit of the structure must be evaluated for each update. This input is only necessary for an NFPA-110 relay configuration. bit0 (MSB) controls Relay 1. OR'd with nvi16RelayA.
nviCalibrate	UNVT_ccm_cfg1a	CCM-G, CCM-T	Used by Manufacturing to calibrate the analog inputs.
nviCustFault1...4	SNVT_switch (2 bytes)	GCM	Input used by the Master Control that allows you to control <i>Customer Fault 1...4</i> via the network (in addition to being hardwired). When the <i>state</i> = 1 (active), the GCM writes the value of <i>Customer Fault 1..4</i> to 1. When the <i>state</i> = 0 (inactive), the GCM writes the value of <i>Customer Fault1..4</i> to 0 State = 0 (Inactive) or 1 (Active)

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviCustInConfig	UNVT_ccm_cfg2 (8 bytes)	CCM-G, CCM-T	Variable used by a configuration tool to configure the active and dialout settings for the discrete (status) inputs. Valid Range: 0 – Active Low, 1 – Active High 0 – Don't Dialout, 1 – Dialout For additional information on how to configure this variable, see Table F-3a for a CCM-G or Table F-3b for a CCM-T.

Table F-3a. CCM-G Variable nviCustInConfig

Field	Type	Size	Description	Input	Default
<i>active[0]</i> <i>bit0 (LSB)</i> ... <i>bit7</i>	u8 (bit-field)	1	Active States for J4.1–8 Custom Status 1 ... Custom Status 8	J4.1 ... J4.8	0 – All Active Low
<i>active[1]</i> <i>bit0 (LSB)</i> ... <i>bit7</i>	u8 (bit-field)	1	Active States for J4.9–16 Custom Status 9 ... Custom Status 16	J4.9 ... J4.16	0 – All Active Low
<i>active[2]</i> <i>bit0</i> <i>bit1</i> <i>bit2</i> <i>bit3</i> <i>bit4</i> <i>bit5</i> <i>bit6</i> <i>bit7</i>	u8 (bit-field)	1	Active States for J5.1–8 Common Alarm Low Fuel Low Engine Temp Customer Fault 1 Customer Fault 2 Fail To Start Overspeed High Engine Temp	J5.1 J5.2 J5.3 J5.4 J5.5 J5.6 J5.7 J5.8	0 – All Active Low
<i>active[3]</i> <i>bit0</i> <i>bit1</i> <i>bit2</i> <i>bit3</i> <i>bit4</i> <i>bit5</i> <i>bit6</i> <i>bit7</i>	u8 (bit-field)	1	Active States for J5.9–16 Low Oil Pressure Pre-High Engine Temp Pre-Low Oil Pressure Genset Running Switch In Off Switch In Run Charger AC Failure Low Coolant Level	J5.9 J5.10 J5.11 J5.12 J5.13 J5.14 J5.15 J5.16	0 – All Active Low
<i>notify[0]</i>	u8 (bit-field)	1	Notify Settings for J4.1–8		0 – All Don't Notify
<i>notify[1]</i>	u8 (bit-field)	1	Notify Settings for J4.9–16		0 – All Don't Notify
<i>notify[2]</i>	u8 (bit-field)	1	Notify Settings for J5.1–8		0 – All Don't Notify
<i>notify[3]</i>	u8 (bit-field)	1	Notify Settings for J5.9–16		0 – All Don't Notify

Table F-3b. CCM-T Variable nviCustInConfig

Field	Type	Size	Description	Input	Default
<i>active[0]</i> <i>bit0</i> <i>bit1</i> <i>bit2</i> <i>bit3</i> <i>bit4</i> <i>bit5</i> <i>bit6</i> <i>bit7</i>	u8 (bit-field)	1	Active States for J4.1–8 Source 1 Available Source 2 Available Source 1 Connected Source 2 Connected Test/Exercise Active Not Used Low Battery Voltage High Battery Voltage	J4.1 ... J4.8	0 – All Active Low
<i>active[0]</i> <i>bit0</i> <i>bit1</i> <i>bit2</i> <i>bit3</i> <i>bit4</i> <i>bit5</i> <i>bit6</i> <i>bit7</i>	u8 (bit-field)	1	Active States for J4.9–16 Transfer Pending Charger AC Failure Not Used Not Used Common alarm Not In Auto Not Used Not Used	J4.9 ... J4.16	0 – All Active Low
<i>active[2]</i> <i>bit0</i> ... <i>bit7</i>	u8 (bit-field)	1	Active States for J5.1–8 Custom Status 1 ... Custom Status 8		0 – All Active Low
<i>active[2]</i> <i>bit0</i> ... <i>bit7</i>	u8 (bit-field)	1	Active States for J5.9–16 Custom Status 9 ... Custom Status 16		0 – All Active Low
<i>notify[0]</i>	u8 (bit-field)	1	Notify Settings for J4.1–8		0 – All Don't Notify
<i>notify[1]</i>	u8 (bit-field)	1	Notify Settings for J4.9–16		0 – All Don't Notify
<i>notify[2]</i>	u8 (bit-field)	1	Notify Settings for J5.1–8		0 – All Don't Notify
<i>notify[3]</i>	u8 (bit-field)	1	Notify Settings for J5.9–16		0 – All Don't Notify

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION																																
nviDialoutConfig	UNVT_DialConfig	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	<p>Variable used by a Service Tool or the Configuration Plug-In to configure the dialout function for the device.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>dialout_break</i></td> <td>unsigned char</td> <td>1</td> <td>Allow communications break to initiate dialout</td> </tr> <tr> <td><i>conn_timeout</i></td> <td>u16</td> <td>2</td> <td>Time out in seconds</td> </tr> <tr> <td><i>dialout_site_1</i></td> <td>unsigned char</td> <td>1</td> <td>Enable/disable dialout to site 1</td> </tr> <tr> <td><i>dialout_site_2</i></td> <td>unsigned char</td> <td>1</td> <td>Enable/disable dialout to site 2</td> </tr> <tr> <td><i>dialout_site_3</i></td> <td>unsigned char</td> <td>1</td> <td>Enable/disable dialout to site 3</td> </tr> <tr> <td><i>dialout_site_4</i></td> <td>unsigned char</td> <td>1</td> <td>Enable/disable dialout to site 4</td> </tr> <tr> <td><i>dialout_site_5</i></td> <td>unsigned char</td> <td>1</td> <td>Enable/disable dialout to site 5</td> </tr> </tbody> </table>	Field	Type	Size	Description	<i>dialout_break</i>	unsigned char	1	Allow communications break to initiate dialout	<i>conn_timeout</i>	u16	2	Time out in seconds	<i>dialout_site_1</i>	unsigned char	1	Enable/disable dialout to site 1	<i>dialout_site_2</i>	unsigned char	1	Enable/disable dialout to site 2	<i>dialout_site_3</i>	unsigned char	1	Enable/disable dialout to site 3	<i>dialout_site_4</i>	unsigned char	1	Enable/disable dialout to site 4	<i>dialout_site_5</i>	unsigned char	1	Enable/disable dialout to site 5
Field	Type	Size	Description																																
<i>dialout_break</i>	unsigned char	1	Allow communications break to initiate dialout																																
<i>conn_timeout</i>	u16	2	Time out in seconds																																
<i>dialout_site_1</i>	unsigned char	1	Enable/disable dialout to site 1																																
<i>dialout_site_2</i>	unsigned char	1	Enable/disable dialout to site 2																																
<i>dialout_site_3</i>	unsigned char	1	Enable/disable dialout to site 3																																
<i>dialout_site_4</i>	unsigned char	1	Enable/disable dialout to site 4																																
<i>dialout_site_5</i>	unsigned char	1	Enable/disable dialout to site 5																																
nviEmerStopCmd	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100 NCM	<p>Input sent by the Master Control, CCM-T, or PowerCommand ATS that is used in conjunction with <i>nviShutdownCmd</i> to shut down the genset. When activated, this input will unconditionally emergency stop the PCC genset. This input is optional for LONMARK gensets.</p> <p>State = 0 (Clear) or 1 (Shutdown)</p>																																
nviEventMsgCnfig	UNVT_ccm_cfg3a (21 bytes)	CCM-G, CCM-T	<p>Variable used by a Service Tool or the Configuration Plug-In to configure the fault message type and text for the discrete (status) inputs.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>Fault_type</i></td> <td>u16</td> <td>2</td> <td>0 – Event, 1 – Warning, 2 – Shutdown</td> </tr> <tr> <td><i>fault_text[0..15]</i></td> <td>char</td> <td>16</td> <td>Any 16-character string</td> </tr> <tr> <td><i>input</i></td> <td>u16</td> <td>2</td> <td>Discrete Input (1–32)</td> </tr> <tr> <td><i>ReadWrite</i></td> <td>U8</td> <td>1</td> <td>0 – Read, 1 – Write</td> </tr> </tbody> </table>	Field	Type	Size	Description	<i>Fault_type</i>	u16	2	0 – Event, 1 – Warning, 2 – Shutdown	<i>fault_text[0..15]</i>	char	16	Any 16-character string	<i>input</i>	u16	2	Discrete Input (1–32)	<i>ReadWrite</i>	U8	1	0 – Read, 1 – Write												
Field	Type	Size	Description																																
<i>Fault_type</i>	u16	2	0 – Event, 1 – Warning, 2 – Shutdown																																
<i>fault_text[0..15]</i>	char	16	Any 16-character string																																
<i>input</i>	u16	2	Discrete Input (1–32)																																
<i>ReadWrite</i>	U8	1	0 – Read, 1 – Write																																
nviFaultResetCmd	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G	<p>Input used to clear or acknowledge the current fault(s).</p> <p>State = 0 (Does Nothing) or 1 (Reset/Acknowledge Faults)</p>																																
nviGenCBInhCmd	SNVT_switch (2 bytes)	GCM, GLC	<p>Input sent by the Master Control that opens the genset circuit breaker or inhibits it from closing (paralleling gensets only).</p> <p>State = 0 (Enable Gen CB) or 1 (Inhibit Gen CB)</p>																																
nviGenConnected	SNVT_switch (2 bytes)	GLC	<p>Input used by the Master Control, the PC ATS NCM, and the CCM-T to inform the genset that it is connected to the load. When the <i>state</i> field is set true (connected), the device informs the controller that the genset is connected to the load. When the <i>state</i> field is set false, the device informs the controller that the genset is not connected to the load. The status of the genset and utility connection is needed for the genset to determine its mode of operation (for example, load govern, voltage/frequency govern).</p> <p>State = 0 (Genset not Connected to Load), 1 (Genset Connected to Load)</p>																																

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviLamp[0]...[20]	SNVT_switch	LSA	Input that allows you to control the annunciator lamps individually. When the <i>state</i> field is set true, the corresponding lamp turns on. When the <i>state</i> field is set false, the corresponding lamp turns off if inputs for the lamp are not true. State = 0 (Off) or 1 (On) nviLamp[0] is a non-functional place holder that is not used.
nviLampConfig	UNVT_LampConfig (4 bytes)	LSA	Input that allows you to configure each lamp (status and error) individually. All data should be validated before applying the requested configuration. Field Valid Range Notes Lamp 1–20 0 – Not used. 1–20 – Status Lamp Color 1–3 1 – Green, 2 – Red, 3 – Amber Horn 0–1 0 – No, 1 – Yes (Sound Horn) Flash 0–1 0 – No, 1 – Yes (Flash Lamp)
nviLoadDemandCmd	SNVT_switch (2 bytes)	GCM, GLC	Input used by the Master Control that shuts down the genset due to over-capacity and allows a Master Control to start and stop the genset as the load changes. When the <i>state</i> field is set true (shutdown the genset), the GCM/GLC instructs the controller to shut down due to load demand after a pre-programmed stop delay. When the <i>state</i> field is set false, the the GCM/GLC removes the load demand shutdown. State = 0 (Clear Load Demand [Run]) or 1 (Load Demand [Stop])
nviLoadShedCmd	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Input used by the genset, Master Control, and ModLon to instruct the ATS to shed and restore its load. When the <i>state</i> field is set true (load shed), the ATS is moved to the neutral position. When the <i>state</i> field is set false (load restore), the ATS operates normally. State = 0 (Load Restore) or 1 (Load Shed)
nviMasterStatus	UNVT_master_status (24 bytes)	GLC, PCC 2100 NCM, PC ATS NCM	Input that allows the genset to monitor the Master Control status. The input is monitored to monitor a single Master Control. The GLC/NCM must poll the input to get updates. It polls the input when <i>System Data</i> is active. When an update is received, the device only writes the Master status to the controller if <i>System Data</i> is active. The data is written as it is received to row #1 of the table. The controller adds a time-stamp to the data. For additional information on how to configure this variable, see Table F-3c below.

Table F-3c. VARIABLE nviMasterStatus

Data Field	Type	Description	Notes
<i>device_type</i>	u16	Device Type	TBD – Master Control
<i>fault_code</i>	u16	Fault Code	TBD
<i>fault_type</i>	u8	Fault Type (System Alarm)	0 – Okay (None) 1 – Alarm 2 – Shutdown 255 – Unknown
<i>mode</i>	u8	Operating Mode/State	0 – Not In Auto 1 – Ready (Auto) 2 – Normal Source Failure 3 – Test/Exercise 4 – Peak Shave 5 – Base Load 255 – Unknown
<i>percent_kw_load</i>	u8 (SNVT_lev_cont)	Load kW / Gen Rating	< 250 – Load percent / 2 % 251 – >125% 255 – Unknown
<i>percent_kw_gen</i>	u8 (SNVT_lev_cont)	Gen kW / Gen Rating	< 250 – Load percent / 2 % 251 – >125% 255 – Unknown
<i>gen_kw</i>	s16	Total Genset kW	65535 – Unknown
<i>load_kw</i>	s16	Total Load kW	65535 – Unknown
<i>util1_kw</i>	s16	Utility1 kW	< 0 – Exporting 65535 – NA
<i>util2_kw</i>	s16	Utility2 kW	< 0 – Exporting 65535 – NA
<i>util1_volts</i>	u16 (SNVT_volt_ac)	Utility1 Voltage (VLL–ave)	65535 – NA
<i>util2_volts</i>	u16 (SNVT_volt_ac)	Utility2 Voltage (VLL–ave)	65535 – NA
<i>extended</i> .bit0 (MSB) .bit1 .bit2 .bit3 .bit4 .bit5 .bit6 .bit7 .bit8 .bit9 .bit10 .bit11 .bit12 .bit13 .bit14 .bit15	u16 (SNVT_state)	Normal Available Emergency Available Normal Connected Emergency Connected System Alarm Not In Auto System Test–Exercise Remote Start Load Demand Check Station Battery Check Generator Low Fuel (Main Tank) Bus Overload Bus Under Frequency Utility Main CB Fail Generator Main CB Fail	Master Extended Annunciation
<i>custom</i> .bit0–15	u16 (SNVT_state)	Custom-defined	Master Custom Annunciation

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION																				
nviMfgTest	unsigned int (1 byte)	All	Input used for development and manufacturing testing.																				
nviNetworkFault1...4	SNVT_switch (2 bytes)	GLC	Input that informs the genset of network faults. State = 0 (Inactive) or 1 (Active)																				
nviNetworkFault1...8	SNVT_switch (2 bytes)	PCC 2100 NCM	Input that informs the genset of network faults. State = 0 (Inactive) or 1 (Active)																				
nviNodeInfo	UNVT_node_info2 (25 bytes)	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	<p>Input used by the Plug-In that configures the name tag and device type. The name tag is used for sending alarms to PowerCommand for Windows® II (PCW II) and sharing data with other nodes in the system (GCM, GLC, PCC 2100 NCM, and CCM-G: <i>nvoGenStatus</i>; PC ATS NCM and CCM-T: <i>nvoATSStatus</i>). The name tag must be set to the device name in LonMaker for Windows in order to show alarms in PCW II.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>device_type[0..7]</td> <td>char</td> <td>8</td> <td>Device Type</td> <td>"CCM0206"</td> </tr> <tr> <td>name_tag[0..15]</td> <td>char</td> <td>16</td> <td>Name identifier used for alarms</td> <td>"CCM Genset"</td> </tr> <tr> <td>phase</td> <td>char</td> <td>1</td> <td>0 – Three phase, 1 – Single phase</td> <td>0</td> </tr> </tbody> </table> <p>Upon node reset or update of <i>nviNodeInfo</i>, → <i>nvoGenStatus.name_tag</i> = <i>nviNodeInfo.name_tag</i> or → <i>nvoATSStatus.name_tag</i> = <i>nviNodeInfo.name_tag</i></p>	Field	Type	Size	Description	Default	device_type[0..7]	char	8	Device Type	"CCM0206"	name_tag[0..15]	char	16	Name identifier used for alarms	"CCM Genset"	phase	char	1	0 – Three phase, 1 – Single phase	0
Field	Type	Size	Description	Default																			
device_type[0..7]	char	8	Device Type	"CCM0206"																			
name_tag[0..15]	char	16	Name identifier used for alarms	"CCM Genset"																			
phase	char	1	0 – Three phase, 1 – Single phase	0																			
nviNodeLocation	UNVT_node_loc (24 bytes)	GLC, GCM, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	<p>Input used by the Plug-In to configure the node's site id. The site id is used for sending alarms to PowerCommand for Windows (PCW II). The name tag must be set to the device name in LonMaker™ for Windows in order to show alarms in PCW II. The configuration tool writes the user-defined site id to this input. This input is required by InPower.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td>site_id[0..7]</td> <td>char</td> <td>8</td> <td>Site identifier for alarms</td> <td>"SITE_ID"</td> </tr> <tr> <td>location[0..15]</td> <td>char</td> <td>16</td> <td>Not used</td> <td>null</td> </tr> </tbody> </table>	Field	Type	Size	Description	Default	site_id[0..7]	char	8	Site identifier for alarms	"SITE_ID"	location[0..15]	char	16	Not used	null					
Field	Type	Size	Description	Default																			
site_id[0..7]	char	8	Site identifier for alarms	"SITE_ID"																			
location[0..15]	char	16	Not used	null																			
nviOverrideCmd	SNVT_switch (2 bytes)	PC ATS NCM	<p>Input used to instruct the transfer switch to override (bypass) any delays or inhibits (except load shed).When the <i>state</i> field is set true (override), the NCM sets <i>nviOverrideCmd.state</i> = 0. When the <i>state</i> field is set false, the NCM does nothing. This input is optional for LONMARK compliance.</p> <p>State = 0 (Does Nothing) or 1 (Override)</p>																				

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION															
nviRampLoadCmd	SNVT_switch (2 bytes)	GLC	Input sent by the Master Control that allows the Master Control to ramp load or ramp unload the genset load. When the <i>state</i> field is set true (ramp load), the GLC instructs the controller to load the genset. When the <i>state</i> field is set false (ramp unload), the GLC instructs the controller to unload the genset. State = 0 (Ramp Load) or 1 (Ramp Unload)															
nviRedialConfig	UNVT_node_redial (3 bytes)	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	Input used by the Plug-In to configure the dialout operation (including dialout attempts and retry delay) of the node. Setting the <i>attempts</i> to “0” disables all remote dialouts. The <i>retry_delay</i> configures the delay between retries in seconds. <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Size</th> <th>Description</th> <th>Range (Default)</th> </tr> </thead> <tbody> <tr> <td>attempts</td> <td>u8</td> <td>2</td> <td>Total number of retries</td> <td>0–255 (10)</td> </tr> <tr> <td>delay</td> <td>u16 (sec)</td> <td>2</td> <td>Delay between dialout retries</td> <td>0–65535 (60)</td> </tr> </tbody> </table>	Field	Type	Size	Description	Range (Default)	attempts	u8	2	Total number of retries	0–255 (10)	delay	u16 (sec)	2	Delay between dialout retries	0–65535 (60)
Field	Type	Size	Description	Range (Default)														
attempts	u8	2	Total number of retries	0–255 (10)														
delay	u16 (sec)	2	Delay between dialout retries	0–65535 (60)														
nviRelay4...8	SNVT_switch (2 bytes)	CCM-G	Input used to individually control relays 4 through 8. State = 0 (Off) or 1 (On)															
nviRelay5...8	SNVT_switch (2 bytes)	CCM-T	Input used to individually control relays 5 through 8. State = 0 (Off) or 1 (On)															
nviRelayCmd[0]...[16]	SNVT_switch	DIM	Inputs that allow for activation of individually controlled relays. When the <i>state</i> field is set true, the corresponding relay will activate. When the <i>state</i> field is set false, the corresponding relay will deactivate if all other inputs controlling that relay are also off. State = 0 (Off) or 1 (On) nviRelayCmd[0] is a non-functional place holder that is not used.															
nviRelayDelay	UNVT_RelDelay_24 17 bytes	DIM	Non-volatile network variable you can use to configure the activation delay for: DIM – Each relay CCM-G – Relays 4–8 CCM-T – Relays 5–8. Each of these relays can be configured to delay up to 255 seconds before activating. Valid Range: 0–255 seconds															
	UNVT_RelDelay_8 9 bytes	CCM-G, CCM-T																
nviResetCmd	SNVT_switch (1 byte)	GCM, GLC, PCC 2100 NCM	Input used to reset the genset. This input clears or acknowledges the current genset fault(s). This input performs the same function as <i>nviFaultResetCmd</i> . Range = 0 (Nothing) or 1 (Reset Genset Fault)															

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviRetransInhCmd	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Input used to disable the ATS from transferring back to Source 1. When set true (retransfer inhibit), <i>nviRetransferInhCmd</i> = 1. When set false (retransfer enable), <i>nviRetransferInhCmd</i> = 0. State = 0 (Enable Retransfer) or 1 (Inhibit Retransfer)
nviRunCmd	SNVT_switch (2 bytes)	GCM	Input used in conjunction with <i>nviStartCmd</i> to start and stop the genset. The two inputs are OR'd together to determine the state of <i>Network Start</i> . In order to stop the genset, all devices bound to <i>nviStartCmd</i> must agree to "stop" and <i>nviRunCmd</i> must be set to 0 (Stop). This input is required for LONMARK Generator Set compliance. When <i>nviRunCmd</i> = 1 (start), the GCM will start the genset. When <i>nviRunCmd</i> = 0 (stop), the GCM will: <ol style="list-style-type: none"> 1. Poll all devices which are connected to <i>nviStartCmd</i>. (All devices connected to this input must agree that the genset should stop before the GCM instructs the controller to stop.) 2. If any response to the poll is 1 (start) when the poll is completed, set <i>nviRunCmd</i> = 1. 3. If all nodes respond and all responses are 0 (stop) and <i>nviRunCmd</i> = 0 (stop), the genset stops. 4. In the case where the poll fails, the GCM assumes that the node responded with 1 (start). Range = 0 (Stop) or 1 (Start)
		GLC, PCC 2100 NCM	Input used to start and stop the genset. When the <i>state</i> field is set true, the GLC/NCM sets the logical address true in the controller. When the <i>state</i> field is set false, the GLC/NCM is set false in the controller. If the poll fails, the GLC/NCM assumes that the node responded with 0 (Stop). Range = 0 (Stop) or 1 (Start)
nviScale	UNVT_ccm_cfg1a (8 bytes)	CCM-G, CCM-T	Used by manufacturing to scale the analog inputs.

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviShutdownCmd	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100 NCM, CCM-G	Input sent by the Master Control, PowerCommand ATS, or CCM-T that instructs the controller to immediately (unconditionally without any time delay) shut down the genset (if it is running) or inhibit it from running (if it is stopped). If necessary, the device will wake up the controller before instructing the controller to shutdown. When the <i>state</i> field is set false, the device polls all other devices connected to this input before instructing the controller. All devices connected to this input must agree that the shutdown should be removed before the shutdown command is removed. This input has a similar operation as <i>nviEmerStopCmd</i> and is equivalent to a 'run override' or a 'run inhibit' command. State = 0 (Clear Shutdown) or 1 (Shutdown Genset)
nviSilenceCmd	SNVT_switch	LSA	Input that allows you to silence the annunciator horn remotely. When the <i>state</i> field is set true, the horn will turn off. Setting the <i>state</i> field false does nothing. This input displays 'momentary' behavior by automatically resetting the <i>state</i> to false when it is set true (silence). State = 0 (Off) or 1 (Silence)
nviSpeedAdjCmd	SNVT_switch (2 bytes)	GLC, PCC 2100 NCM	Input sent by a PowerCommand ATS that increases the nominal speed of the genset by 0.5 Hz. This input allows a PowerCommand transfer switch to perform a closed transition with a non-parallel genset. When the <i>state</i> field is set true, the GLC/NCM increases the nominal genset frequency setpoint by 0.5 Hz. When the <i>state</i> field is set false, the GLC/NCM returns the genset to its correct nominal frequency. State = 0 (Set to Nominal Frequency) or 1 (Increase Frequency by 0.5 Hz)
nviSrc1Status	UNVT_gen_status (30 bytes)	PC ATS NCM	Input sent by the genset that is used to allow the transfer switch to view the status of Source 1. The input is limited to monitor only one genset. When an update is received, the NCM writes the current status of Source 1 to the controller. The data is written as received. This input can only be used when Source 1 is a genset. (Typically, Source 1 is the utility power.) See Table F-3d below.

Table F-3d. PC ATS NCM Variables nviSrc1Status and nviSrc2Status

Field	Type	Logical Address	Notes
<i>name_tag</i>	char[16]	Network Configuration	ASCII string
<i>device_type</i>	u16	NA	3 – PCC 3200 5 – PCC 3100 11 – PCC 2100
<i>control_switch</i>	u8	Control Switch Position	0 – Off 1 – Run\Manual 2 – Auto 255 – Unknown
<i>state</i>	u8	Genset Run Sequence State	0 – Stopped 1 – Start Pending 2 – Warmup /Idle 3 – Running 4 – Cooldown /Rated 5 – Cooldown /Idle 255 – Unknown
<i>fault_code</i>	u16	NA	Varies by device.
<i>fault_type</i>	u8	NA	1 – Warning 2 – Derate 3 – Shutdown w/cooldown 4 – Shutdown 255 – Unknown
<i>percent_kw</i>	u8 (SNVT_lev_cont)	% Application Total kW	Clamp, see <i>nvoRunStatus</i>
<i>total_kw</i>	s16	Total kW	
<i>nfp110</i>	u16 (SNVT_state)	NA	See <i>nvoAnnunNFP110</i>
<i>extended</i>	u16 (SNVT_state)	NA	See <i>nvoAnnunExtended</i>

F-15

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviSrc2Status	UNVT_gen_status (30 bytes)	PC ATS NCM	Input sent by the genset and used to allow the transfer switch to view the status of Source 2. The input is limited to monitor a single genset. When an update is received, the NCM writes the current status of Source 2 to the controller. The data is written as it is received. This input is only used when Source 2 is a genset. For data, see Table F-3d.
nviStartCmd	SNVT_switch (2 bytes)	All	If <i>state</i> = 1, the genset starts. For a GLC, this is dependent on the state of <i>nviStartType</i> . This variable is OR'd with <i>nviRunCmd</i> on certain devices. Setting <i>state</i> = 0 stops the genset only if all devices bound to this variable and <i>nviRunCmd</i> have their state set to 0. Range = 0 (Stop) or 1 (Start)

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviStartType	SNVT_switch (2 bytes)	GCM, PCC 2100 NCM, CCM-G	This input is declared but not used. It is required for auto-binding.
		GLC	Input sent by the Master Control or the PowerCommand ATS that sets the start type of the PCC 3200 genset. When the <i>state</i> field is set true, the GLC is configured for a 'test' (non-emergency) when a 'start' command is received. When <i>state</i> field is set false, the controller is configured for 'emergency' when a 'start' command is received. The GLC uses the last update of <i>nviStartType</i> to configure the controller. The input defaults to 0 (emergency start). The GLC automatically resets the input to 'emergency' after each 'start' command is written to the controller. State = 0 (Emergency Start) or 1 (Non-Emergency Start [Test])
nviSyncEnableCmd	SNVT_switch (2 bytes)	GLC	Input used by a PowerCommand transfer switch to enable a paralleling genset to synchronize to the normal (utility) bus. When the <i>state</i> field is set true (enable sync mode), the GLC instructs the controller to enable synchronizing. When the <i>state</i> field is set false, the GLC instructs the controller to disable synchronizing. State = 0 (Disable Synchronizer) or 1 (Enable Synchronizer)
nviTestCmd	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Input sent by the Master Control or ModLon that is used to allow a network device to test the ATS. In the case where not all devices respond, the NCM will use only those devices which have responded. This input is required for LONMARK compliance. State = 0 (End Test) or 1 (Start Test)
nviTransInhCmd	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Input used by the Master Control to disable the ATS from transferring to Source 2. State = 0 (Enable Transfer) or 1 (Inhibit Transfer)

TABLE F-3. NETWORK VARIABLE INPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE RECEIVED BY	DESCRIPTION
nviUtilCBInhCmd	SNVT_switch (2 bytes)	GLC	Input sent by the Master Control and used to open the utility circuit breaker or inhibit it from closing (paralleling gensets only). When the <i>state</i> field is set true (inhibit), the GLC instructs the controller to inhibit the utility circuit breaker. When the <i>state</i> field is set false, the GLC removes the utility circuit breaker inhibit. State = 0 (Enable Util CB) or 1 (Inhibit Util CB)
nviUtilConnected	SNVT_switch (2 bytes)	GLC	Input sent by the Master Control, PowerCommand ATS, and CCM-T that informs the genset that the utility is connected to the load. When the <i>state</i> field is set true (utility connected), the GLC, in return, informs the controller the utility is connected to the load. When the <i>state</i> field is set false, the GLC, in return, informs the controller the utility is no longer connected to the load. The status of the genset and utility connection is needed for the genset to determine its mode of operation (e.g. load govern, load share, dead bus, etc.). This input is given highest priority when processing. State = 0 (Utility not Connected to Load) or 1 (Utility Connected to Load)

Variable Outputs

Table F-4 includes information on all Variable Outputs used with the FT-10 PowerCommand network.

TABLE F-4. NETWORK VARIABLE OUTPUTS

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoACDataLoad	UNVT_ac_data (31 bytes)	PC ATS NCM	Output used to provide the current AC data of the load for the Master Control. For more information, see the appropriate table below.
		CCM-T	Output used to provide the instantaneous AC data of the genset for the Master Control. The CCM-T does not calculate any values (for example, volts LL, volts LN). For more information, see Table F-4a for an PC ATS NCM or Table F-4b for a CCM-T.

Table F-4a. PC ATS NCM Variable *nvoACDataLoad*

Field	Type	Data Source
freq	u16 (SNVT_freq_hz)	Load Frequency
total_pf	s16 (SNVT_pwr_fact)	Load Total PF
total_kva	s16	Load Total kVA
total_kw	s16	Load Total kW
total_kvar	s16	Load Total kVAR
volts_ab	u16 (SNVT_volt_ac)	Load Volts L1–L2
volts_bc	u16 (SNVT_volt_ac)	Load Volts L2–L3
volts_ca	u16 (SNVT_volt_ac)	Load Volts L3–L1
volts_a	u16 (SNVT_volt_ac)	Load Volts L1–N
volts_b	u16 (SNVT_volt_ac)	Load Volts L2–N
volts_c	u16 (SNVT_volt_ac)	Load Volts L3–N
amps_a	u16 (SNVT_amp_ac)	Load Amps L1
amps_b	u16 (SNVT_amp_ac)	Load Amps L2
amps_c	u16 (SNVT_amp_ac)	Load Amps L3
percent_amps_a	u8 (SNVT_lev_cont)	Load Amps %L1
percent_amps_b	u8 (SNVT_lev_cont)	Load Amps %L2
percent_amps_c	u8 (SNVT_lev_cont)	Load Amps %L3

Table F-4b. CCM-T Variable *nvoACDataLoad*

Field	Type	Data Source
freq	u16 (SNVT_freq_hz)	IO_6
total_pf	s16 (SNVT_pwr_fact)	Analog Inputs 6–8 IO_5 (lead/lag)
total_kva	s16 (1 kVA)	Analog Inputs 0–8
total_kw	s16 (1 kW)	Analog Inputs 0–8
total_kvar	s16 (1 kVAR)	Analog Inputs 0–8
volts_ab	u16 (SNVT_volt_ac)	Not Supported
volts_bc	u16 (SNVT_volt_ac)	Not Supported
volts_ca	u16 (SNVT_volt_ac)	Not Supported
volts_a	u16 (SNVT_volt_ac)	Analog Input 0
volts_b	u16 (SNVT_volt_ac)	Analog Input 1
volts_c	u16 (SNVT_volt_ac)	Analog Input 2
amps_a	u16 (SNVT_amp_ac)	Analog Input 3
amps_b	u16 (SNVT_amp_ac)	Analog Input 4
amps_c	u16 (SNVT_amp_ac)	Analog Input 5
percent_amps_a	u8 (SNVT_lev_cont)	Not Supported
percent_amps_b	u8 (SNVT_lev_cont)	Not Supported
percent_amps_c	u8 (SNVT_lev_cont)	Not Supported

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoACDataSrc1	UNVT_ac_data (31 bytes)	PC ATS NCM	Output used by the Master Control to provide the AC data of Source 1. All data in this structure is obtained by polling the controller. For more information, see Table F-4c below.

Table F-4c. PC ATS NCM Variable *nvoACDataSrc1*

Field	Type	Logical Address
<i>freq</i>	u16 (SNVT_freq_hz)	Source 1 Frequency
<i>total_pf</i>	s16 (SNVT_pwr_fact)	NA
<i>total_kva</i>	s16	NA
<i>total_kw</i>	s16	NA
<i>total_kvar</i>	s16	NA
<i>volts_ab</i>	u16 (SNVT_volt_ac)	Source 1 Volts L1–L2
<i>volts_bc</i>	u16 (SNVT_volt_ac)	Source 1 Volts L2–L3
<i>volts_ca</i>	u16 (SNVT_volt_ac)	Source 1 Volts L3–L1
<i>volts_a</i>	u16 (SNVT_volt_ac)	Source 1 Volts L1–N
<i>volts_b</i>	u16 (SNVT_volt_ac)	Source 1 Volts L2–N
<i>volts_c</i>	u16 (SNVT_volt_ac)	Source 1 Volts L3–N
<i>amps_a</i>	u16 (SNVT_amp_ac)	NA
<i>amps_b</i>	u16 (SNVT_amp_ac)	NA
<i>amps_c</i>	u16 (SNVT_amp_ac)	NA
<i>percent_amps_a</i>	u8 (SNVT_lev_cont)	NA
<i>percent_amps_b</i>	u8 (SNVT_lev_cont)	NA
<i>percent_amps_c</i>	u8 (SNVT_lev_cont)	NA

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoACDataSrc2	UNVT_ac_data (31 bytes)	PC ATS NCM	Output used by the Master Control to provide the AC data of Source 2. All data in this structure is obtained by polling the controller. For more information, see Table F-4d below.

Table F-4d. PC ATS NCM Variable *nvoACDataSrc2*

Field	Type	Logical Address
<i>freq</i>	u16 (SNVT_freq_hz)	Source 2 Frequency
<i>total_pf</i>	s16 (SNVT_pwr_fact)	NA
<i>total_kva</i>	s16	NA
<i>total_kw</i>	s16	NA
<i>total_kvar</i>	s16	NA
<i>volts_ab</i>	u16 (SNVT_volt_ac)	Source 1 Volts L1–L2
<i>volts_bc</i>	u16 (SNVT_volt_ac)	Source 1 Volts L2–L3
<i>volts_ca</i>	u16 (SNVT_volt_ac)	Source 1 Volts L3–L1
<i>volts_a</i>	u16 (SNVT_volt_ac)	Source 1 Volts L1–N
<i>volts_b</i>	u16 (SNVT_volt_ac)	Source 1 Volts L2–N
<i>volts_c</i>	u16 (SNVT_volt_ac)	Source 1 Volts L3–N
<i>amps_a</i>	u16 (SNVT_amp_ac)	NA
<i>amps_b</i>	u16 (SNVT_amp_ac)	NA
<i>amps_c</i>	u16 (SNVT_amp_ac)	NA
<i>percent_amps_a</i>	u8 (SNVT_lev_cont)	NA
<i>percent_amps_b</i>	u8 (SNVT_lev_cont)	NA
<i>percent_amps_c</i>	u8 (SNVT_lev_cont)	NA

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																								
nvoAnnun4Point	SNVT_state (2 bytes)	GCM, GLC, PCC 2100 NCM	Output used to annunciate a “short” genset status to the annunciator. Alarms are set when the event is active and reset when the event is inactive. <table border="1"> <thead> <tr> <th>Field</th> <th>Alarm</th> <th>Latch</th> <th>Fault or Condition (Data Source)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>N</td> <td>Common Warning or Shutdown Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>N</td> <td>Genset Connected</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>N</td> <td>Ready to Load (Genset Available)</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>N</td> <td>Not In Auto</td> </tr> <tr> <td><i>bit4..15</i></td> <td>Not Used</td> <td>-</td> <td></td> </tr> </tbody> </table>	Field	Alarm	Latch	Fault or Condition (Data Source)	<i>bit0</i>	Check Genset	N	Common Warning or Shutdown Alarm	<i>bit1</i>	Genset Supplying Load	N	Genset Connected	<i>bit2</i>	Genset Running	N	Ready to Load (Genset Available)	<i>bit3</i>	Not In Auto	N	Not In Auto	<i>bit4..15</i>	Not Used	-	
		Field	Alarm	Latch	Fault or Condition (Data Source)																						
		<i>bit0</i>	Check Genset	N	Common Warning or Shutdown Alarm																						
<i>bit1</i>	Genset Supplying Load	N	Genset Connected																								
<i>bit2</i>	Genset Running	N	Ready to Load (Genset Available)																								
<i>bit3</i>	Not In Auto	N	Not In Auto																								
<i>bit4..15</i>	Not Used	-																									
CCM-G	Output used to annunciate a “short” genset status to the annunciator. <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check genset</td> <td>17</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>Not Supported</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>28</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>29,30</td> </tr> <tr> <td><i>bit4..15</i></td> <td>Not Used</td> <td></td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Check genset	17	<i>bit1</i>	Genset Supplying Load	Not Supported	<i>bit2</i>	Genset Running	28	<i>bit3</i>	Not In Auto	29,30	<i>bit4..15</i>	Not Used									
Field	Description	Discrete Input																									
<i>bit0</i>	Check genset	17																									
<i>bit1</i>	Genset Supplying Load	Not Supported																									
<i>bit2</i>	Genset Running	28																									
<i>bit3</i>	Not In Auto	29,30																									
<i>bit4..15</i>	Not Used																										
PC ATS NCM, CCM-T	Output used to annunciate a “short” ATS status to the annunciator. None of these events are “latched” by the NCM/CCM-T; thus each bit is set when the event is active and reset when the event is inactive. <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Source 1 Available</td> <td>1</td> </tr> <tr> <td><i>bit1</i></td> <td>Source 2 Available</td> <td>2</td> </tr> <tr> <td><i>bit2</i></td> <td>Source 1 Connected</td> <td>3</td> </tr> <tr> <td><i>bit3</i></td> <td>Source 2 Connected</td> <td>4</td> </tr> <tr> <td><i>bit4..15</i></td> <td>Not Used</td> <td>Not Supported</td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Source 1 Available	1	<i>bit1</i>	Source 2 Available	2	<i>bit2</i>	Source 1 Connected	3	<i>bit3</i>	Source 2 Connected	4	<i>bit4..15</i>	Not Used	Not Supported								
Field	Description	Discrete Input																									
<i>bit0</i>	Source 1 Available	1																									
<i>bit1</i>	Source 2 Available	2																									
<i>bit2</i>	Source 1 Connected	3																									
<i>bit3</i>	Source 2 Connected	4																									
<i>bit4..15</i>	Not Used	Not Supported																									
nvoAnnun8Point	SNVT_state (2 bytes)	DIM	Output used by the annunciator to provide the state of the 8 discrete inputs. Only <i>bits0..7</i> are used. <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>State of Input 1</td> </tr> <tr> <td><i>bit1</i></td> <td>State of Input 2</td> </tr> <tr> <td><i>bit2</i></td> <td>State of Input 3</td> </tr> <tr> <td><i>bit3</i></td> <td>State of Input 4</td> </tr> <tr> <td><i>bit4</i></td> <td>State of Input 5</td> </tr> <tr> <td><i>bit5</i></td> <td>State of Input 6</td> </tr> <tr> <td><i>bit6</i></td> <td>State of Input 7</td> </tr> <tr> <td><i>bit7</i></td> <td>State of Input 8</td> </tr> <tr> <td><i>bit8..15</i></td> <td>Not Used</td> </tr> </tbody> </table>	Field	Description	<i>bit0</i>	State of Input 1	<i>bit1</i>	State of Input 2	<i>bit2</i>	State of Input 3	<i>bit3</i>	State of Input 4	<i>bit4</i>	State of Input 5	<i>bit5</i>	State of Input 6	<i>bit6</i>	State of Input 7	<i>bit7</i>	State of Input 8	<i>bit8..15</i>	Not Used				
Field	Description																										
<i>bit0</i>	State of Input 1																										
<i>bit1</i>	State of Input 2																										
<i>bit2</i>	State of Input 3																										
<i>bit3</i>	State of Input 4																										
<i>bit4</i>	State of Input 5																										
<i>bit5</i>	State of Input 6																										
<i>bit6</i>	State of Input 7																										
<i>bit7</i>	State of Input 8																										
<i>bit8..15</i>	Not Used																										

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																						
nvoAnnun8Point (Continued)	SNVT_state (2 bytes)	GCM, GLC, PCC 2100 NCM	<p>Output used to annunciate a simplified genset status to the annunciator. Some of these events are “latched” by the GCM/GLC and remain set until the corresponding event is inactive and the genset is reset. Alarms that are not latched are set when the event is active and reset when the event is inactive.</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Alarm</th> <th>Events</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>Common Warning or Shutdown Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>Genset Connected</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>Ready to Load (Genset Available)</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>Not In Auto</td> </tr> <tr> <td><i>bit4</i></td> <td>High/Low Engine Temp</td> <td>See <i>nvoAnnunNFWA.bit8,9,10</i></td> </tr> <tr> <td><i>bit5</i></td> <td>Low Oil Pressure</td> <td>See <i>nvoAnnunNFWA110.bit11,12</i></td> </tr> <tr> <td><i>bit6</i></td> <td>Low Coolant Level</td> <td>See <i>nvoAnnunNFWA110.bit14</i></td> </tr> <tr> <td><i>bit7</i></td> <td>Low Fuel Level</td> <td>See <i>nvoAnnunNFWA110.bit15</i></td> </tr> <tr> <td><i>bit8..15</i></td> <td>Not Used</td> <td></td> </tr> </tbody> </table>	Field	Alarm	Events	<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm	<i>bit1</i>	Genset Supplying Load	Genset Connected	<i>bit2</i>	Genset Running	Ready to Load (Genset Available)	<i>bit3</i>	Not In Auto	Not In Auto	<i>bit4</i>	High/Low Engine Temp	See <i>nvoAnnunNFWA.bit8,9,10</i>	<i>bit5</i>	Low Oil Pressure	See <i>nvoAnnunNFWA110.bit11,12</i>	<i>bit6</i>	Low Coolant Level	See <i>nvoAnnunNFWA110.bit14</i>	<i>bit7</i>	Low Fuel Level	See <i>nvoAnnunNFWA110.bit15</i>	<i>bit8..15</i>	Not Used									
		Field	Alarm	Events																																					
		<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm																																					
<i>bit1</i>	Genset Supplying Load	Genset Connected																																							
<i>bit2</i>	Genset Running	Ready to Load (Genset Available)																																							
<i>bit3</i>	Not In Auto	Not In Auto																																							
<i>bit4</i>	High/Low Engine Temp	See <i>nvoAnnunNFWA.bit8,9,10</i>																																							
<i>bit5</i>	Low Oil Pressure	See <i>nvoAnnunNFWA110.bit11,12</i>																																							
<i>bit6</i>	Low Coolant Level	See <i>nvoAnnunNFWA110.bit14</i>																																							
<i>bit7</i>	Low Fuel Level	See <i>nvoAnnunNFWA110.bit15</i>																																							
<i>bit8..15</i>	Not Used																																								
PC ATS NCM	<p>Output to annunciate a ‘simplified’ ATS status to the annunciator. None of these events are “latched” by the NCM; thus each bit is set when the event is active and reset when the event is inactive.</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latched</th> <th>Event(s)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Source 1 Available</td> <td>N</td> <td>Source 1 Available</td> </tr> <tr> <td><i>bit1</i></td> <td>Source 2 Available</td> <td>N</td> <td>Source2 Available</td> </tr> <tr> <td><i>bit2</i></td> <td>Source 1 Connected</td> <td>N</td> <td>Source1 Connected</td> </tr> <tr> <td><i>bit3</i></td> <td>Source 2 Connected</td> <td>N</td> <td>Source2 Connected</td> </tr> <tr> <td><i>bit4</i></td> <td>ATS Common Alarm</td> <td>N</td> <td>ATS Common Alarm</td> </tr> <tr> <td><i>bit5</i></td> <td>Not In Auto</td> <td>N</td> <td>Not In Auto – Common</td> </tr> <tr> <td><i>bit6</i></td> <td>Test/Exercise in Progress</td> <td>N</td> <td>Exercise or Test in Progress</td> </tr> <tr> <td><i>bit7</i></td> <td>Low ATS Battery</td> <td>Y</td> <td>Low Battery – Controller Low Battery – Network</td> </tr> <tr> <td><i>bit8..15</i></td> <td>Not Used</td> <td>–</td> <td></td> </tr> </tbody> </table>	Field	Description	Latched	Event(s)	<i>bit0</i>	Source 1 Available	N	Source 1 Available	<i>bit1</i>	Source 2 Available	N	Source2 Available	<i>bit2</i>	Source 1 Connected	N	Source1 Connected	<i>bit3</i>	Source 2 Connected	N	Source2 Connected	<i>bit4</i>	ATS Common Alarm	N	ATS Common Alarm	<i>bit5</i>	Not In Auto	N	Not In Auto – Common	<i>bit6</i>	Test/Exercise in Progress	N	Exercise or Test in Progress	<i>bit7</i>	Low ATS Battery	Y	Low Battery – Controller Low Battery – Network	<i>bit8..15</i>	Not Used	–	
Field	Description	Latched	Event(s)																																						
<i>bit0</i>	Source 1 Available	N	Source 1 Available																																						
<i>bit1</i>	Source 2 Available	N	Source2 Available																																						
<i>bit2</i>	Source 1 Connected	N	Source1 Connected																																						
<i>bit3</i>	Source 2 Connected	N	Source2 Connected																																						
<i>bit4</i>	ATS Common Alarm	N	ATS Common Alarm																																						
<i>bit5</i>	Not In Auto	N	Not In Auto – Common																																						
<i>bit6</i>	Test/Exercise in Progress	N	Exercise or Test in Progress																																						
<i>bit7</i>	Low ATS Battery	Y	Low Battery – Controller Low Battery – Network																																						
<i>bit8..15</i>	Not Used	–																																							
CCM-G	<p>Output to annunciate a shortened NFWA-110 status to the annunciator.</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>17</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>Not Supported</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>28</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>29,30</td> </tr> <tr> <td><i>bit4</i></td> <td>High/Low Engine Temp</td> <td>See <i>nvoAnnunNFWA110.bit8,9,10</i></td> </tr> <tr> <td><i>bit5</i></td> <td>Low Oil Pressure</td> <td>See <i>nvoAnnunNFWA110.bit11,12</i></td> </tr> <tr> <td><i>bit6</i></td> <td>Low Coolant Level</td> <td>See <i>nvoAnnunNFWA110.bit14</i></td> </tr> <tr> <td><i>bit7</i></td> <td>Low Fuel Level</td> <td>See <i>nvoAnnunNFWA110.bit15</i></td> </tr> <tr> <td><i>bit8..15</i></td> <td>Not Used</td> <td></td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Check Genset	17	<i>bit1</i>	Genset Supplying Load	Not Supported	<i>bit2</i>	Genset Running	28	<i>bit3</i>	Not In Auto	29,30	<i>bit4</i>	High/Low Engine Temp	See <i>nvoAnnunNFWA110.bit8,9,10</i>	<i>bit5</i>	Low Oil Pressure	See <i>nvoAnnunNFWA110.bit11,12</i>	<i>bit6</i>	Low Coolant Level	See <i>nvoAnnunNFWA110.bit14</i>	<i>bit7</i>	Low Fuel Level	See <i>nvoAnnunNFWA110.bit15</i>	<i>bit8..15</i>	Not Used											
Field	Description	Discrete Input																																							
<i>bit0</i>	Check Genset	17																																							
<i>bit1</i>	Genset Supplying Load	Not Supported																																							
<i>bit2</i>	Genset Running	28																																							
<i>bit3</i>	Not In Auto	29,30																																							
<i>bit4</i>	High/Low Engine Temp	See <i>nvoAnnunNFWA110.bit8,9,10</i>																																							
<i>bit5</i>	Low Oil Pressure	See <i>nvoAnnunNFWA110.bit11,12</i>																																							
<i>bit6</i>	Low Coolant Level	See <i>nvoAnnunNFWA110.bit14</i>																																							
<i>bit7</i>	Low Fuel Level	See <i>nvoAnnunNFWA110.bit15</i>																																							
<i>bit8..15</i>	Not Used																																								

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																														
nvoAnnun8Point (Continued)	SNVT_state (2 bytes)	CCM-T	<p>Output to announce a 'simplified' ATS status to the annunciator. None of these events are "latched" by the CCM-T; thus each bit is set when the event is active and reset when the event is inactive.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Source 1 Available</td> <td>1</td> </tr> <tr> <td><i>bit1</i></td> <td>Source 2 Available</td> <td>2</td> </tr> <tr> <td><i>bit2</i></td> <td>Source 1 Connected</td> <td>3</td> </tr> <tr> <td><i>bit3</i></td> <td>Source 2 Connected</td> <td>4</td> </tr> <tr> <td><i>bit4</i></td> <td>ATS Common Alarm</td> <td>13</td> </tr> <tr> <td><i>bit5</i></td> <td>Not In Auto</td> <td>14</td> </tr> <tr> <td><i>bit6</i></td> <td>Test/Exercise in Progress</td> <td>5</td> </tr> <tr> <td><i>bit7</i></td> <td>[Low Battery]</td> <td>Not Supported</td> </tr> <tr> <td><i>bit8..15</i></td> <td>NA</td> <td>Not Supported</td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Source 1 Available	1	<i>bit1</i>	Source 2 Available	2	<i>bit2</i>	Source 1 Connected	3	<i>bit3</i>	Source 2 Connected	4	<i>bit4</i>	ATS Common Alarm	13	<i>bit5</i>	Not In Auto	14	<i>bit6</i>	Test/Exercise in Progress	5	<i>bit7</i>	[Low Battery]	Not Supported	<i>bit8..15</i>	NA	Not Supported
Field	Description	Discrete Input																															
<i>bit0</i>	Source 1 Available	1																															
<i>bit1</i>	Source 2 Available	2																															
<i>bit2</i>	Source 1 Connected	3																															
<i>bit3</i>	Source 2 Connected	4																															
<i>bit4</i>	ATS Common Alarm	13																															
<i>bit5</i>	Not In Auto	14																															
<i>bit6</i>	Test/Exercise in Progress	5																															
<i>bit7</i>	[Low Battery]	Not Supported																															
<i>bit8..15</i>	NA	Not Supported																															
nvoAnnunCustom	SNVT_state (2 bytes)	All	nvoAnnunCustom is factory set as 16 "nulls." To use nvoAnnunCustom, the 16 faults must be set using the InPower service tool software before binding with LonMaker for Windows or creating a self-installed network.																														
		GCM	<p>Output used to announce a customer-defined set of genset faults to the annunciator. All faults are "latched" by the GCM and remain set until the corresponding event is inactive <u>and</u> the genset is reset. Upon receiving an active event announcement, the GCM updates the Event table and processes the event.</p> <p>A list of GCM faults is listed in Table F-5 (all faults are "latched").</p> <p>Upon receiving an inactive common warning/shutdown event, the GCM updates the Event table. For each record, if the event has been cleared, the GCM again compares the event code against those of the custom announcement; if the event code matches, that bit is reset.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latch</th> <th>Fault or Condition (Data Source)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Fault 1</td> <td>Y</td> <td>Common Alarm (<i>Genset Data.Status {bit0}</i>)</td> </tr> <tr> <td><i>bit1</i></td> <td>Fault 2</td> <td>Y</td> <td>Configurable</td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td><i>bit15</i></td> <td>Fault 16</td> <td>Y</td> <td>Configurable</td> </tr> </tbody> </table>	Field	Description	Latch	Fault or Condition (Data Source)	<i>bit0</i>	Fault 1	Y	Common Alarm (<i>Genset Data.Status {bit0}</i>)	<i>bit1</i>	Fault 2	Y	Configurable	<i>bit15</i>	Fault 16	Y	Configurable										
		Field	Description	Latch	Fault or Condition (Data Source)																												
<i>bit0</i>	Fault 1	Y	Common Alarm (<i>Genset Data.Status {bit0}</i>)																														
<i>bit1</i>	Fault 2	Y	Configurable																														
...																														
<i>bit15</i>	Fault 16	Y	Configurable																														
GLC	<p>Output used to announce a customer-defined set of genset faults to the annunciator. All faults are "latched" by the GLC and remain set until the corresponding event becomes inactive <u>and</u> the genset is reset. A list of GLC events is listed in Table F-6.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latch</th> <th>Event(s)</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Fault 1</td> <td>Y</td> <td>Event Code must be configured</td> <td>0</td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td><i>bit16</i></td> <td>Fault 16</td> <td>Y</td> <td>Event Code must be configured</td> <td>0</td> </tr> </tbody> </table>	Field	Description	Latch	Event(s)	Default	<i>bit0</i>	Fault 1	Y	Event Code must be configured	0	<i>bit16</i>	Fault 16	Y	Event Code must be configured	0												
Field	Description	Latch	Event(s)	Default																													
<i>bit0</i>	Fault 1	Y	Event Code must be configured	0																													
...																													
<i>bit16</i>	Fault 16	Y	Event Code must be configured	0																													

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																
nvoAnnunCustom (Continued)	SNVT_state (2 bytes)	PCC 2100 NCM	<p>Output used to drive a customer-defined set of genset faults to the annunciator. The bits may be “latched” (clear or fault reset) or “unlatched” (follow status of event). The NCM supports unlatched events <i>Not In Auto</i> (1463), <i>Load Demand</i> (1341), and <i>Ready to Load</i> (1465). All other fault codes are considered latched. A list of PCC 2100 events is listed in Table F-7.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Event(s)</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Custom Annunciation Fault 1</td> <td>Event Code must be configured</td> <td>0</td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td><i>bit15</i></td> <td>Custom Annunciation Fault 16</td> <td>Event Code must be configured</td> <td>0</td> </tr> </tbody> </table>	Field	Description	Event(s)	Default	<i>bit0</i>	Custom Annunciation Fault 1	Event Code must be configured	0	<i>bit15</i>	Custom Annunciation Fault 16	Event Code must be configured	0
		Field	Description	Event(s)	Default														
		<i>bit0</i>	Custom Annunciation Fault 1	Event Code must be configured	0														
...																
<i>bit15</i>	Custom Annunciation Fault 16	Event Code must be configured	0																
CCM-G	<p>Output used to annunciate a customer-defined set of genset faults to the annunciator. The bits correspond to the [calibrated] state of Discrete Inputs 1 through 16. CCM-G faults are listed in Table F-8.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Custom Status 1</td> <td>1</td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td><i>bit15</i></td> <td>Custom Status 16</td> <td>16</td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Custom Status 1	1	<i>bit15</i>	Custom Status 16	16						
Field	Description	Discrete Input																	
<i>bit0</i>	Custom Status 1	1																	
...																	
<i>bit15</i>	Custom Status 16	16																	
CCM-T	<p>Output used to annunciate a customer-defined set of transfer switch faults to the annunciator. The bits correspond to the [calibrated] state of Discrete Inputs 17 through 32. CCM-T events are listed in Table F-9.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Custom Status 1</td> <td>17</td> </tr> <tr> <td>...</td> <td>...</td> <td>...</td> </tr> <tr> <td><i>bit15</i></td> <td>Custom Status 16</td> <td>32</td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Custom Status 1	17	<i>bit15</i>	Custom Status 16	32						
Field	Description	Discrete Input																	
<i>bit0</i>	Custom Status 1	17																	
...																	
<i>bit15</i>	Custom Status 16	32																	

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																																				
nvoAnnunExtended	SNVT_state (2 bytes)	GCM	<p>Output used to annunciate the extended genset alarms to the annunciator. All extended alarms are “latched” by the GCM and remain set until the corresponding event becomes inactive <u>and</u> the genset is reset.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latch</th> <th>Fault or Condition (Data Source)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>N</td> <td>Common Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Ground Fault</td> <td>–</td> <td>Not supported</td> </tr> <tr> <td><i>bit2</i></td> <td>High AC Voltage</td> <td>Y</td> <td>High AC Voltage</td> </tr> <tr> <td><i>bit3</i></td> <td>Low AC Voltage</td> <td>Y</td> <td>Low AC Voltage</td> </tr> <tr> <td><i>bit4</i></td> <td>Under Frequency</td> <td>Y</td> <td>Under Frequency</td> </tr> <tr> <td><i>bit5</i></td> <td>Overload</td> <td>Y</td> <td>Overload</td> </tr> <tr> <td><i>bit6</i></td> <td>Overcurrent</td> <td>Y</td> <td>Overcurrent Warning or Shutdown</td> </tr> <tr> <td><i>bit7</i></td> <td>Short Circuit</td> <td>Y</td> <td>Short Circuit</td> </tr> <tr> <td><i>bit8</i></td> <td>Reverse kW</td> <td>Y</td> <td>Reverse kW</td> </tr> <tr> <td><i>bit9</i></td> <td>Reverse kVAR</td> <td>Y</td> <td>Loss of Field</td> </tr> <tr> <td><i>bit10</i></td> <td>Fail to Sync</td> <td>Y</td> <td>Fail to Sync</td> </tr> <tr> <td><i>bit11</i></td> <td>Fail to Close</td> <td>Y</td> <td>[Gen CB] Fail to Close</td> </tr> <tr> <td><i>bit12</i></td> <td>Load Demand</td> <td>N</td> <td>Load Demand</td> </tr> <tr> <td><i>bit13</i></td> <td>Genset CB Tripped</td> <td>–</td> <td>Not supported</td> </tr> <tr> <td><i>bit14</i></td> <td>Utility CB Tripped</td> <td>–</td> <td>Not supported</td> </tr> <tr> <td><i>bit15</i></td> <td>Emergency Stop</td> <td>Y</td> <td>Emergency Stop</td> </tr> </tbody> </table>	Field	Description	Latch	Fault or Condition (Data Source)	<i>bit0</i>	Check Genset	N	Common Alarm	<i>bit1</i>	Ground Fault	–	Not supported	<i>bit2</i>	High AC Voltage	Y	High AC Voltage	<i>bit3</i>	Low AC Voltage	Y	Low AC Voltage	<i>bit4</i>	Under Frequency	Y	Under Frequency	<i>bit5</i>	Overload	Y	Overload	<i>bit6</i>	Overcurrent	Y	Overcurrent Warning or Shutdown	<i>bit7</i>	Short Circuit	Y	Short Circuit	<i>bit8</i>	Reverse kW	Y	Reverse kW	<i>bit9</i>	Reverse kVAR	Y	Loss of Field	<i>bit10</i>	Fail to Sync	Y	Fail to Sync	<i>bit11</i>	Fail to Close	Y	[Gen CB] Fail to Close	<i>bit12</i>	Load Demand	N	Load Demand	<i>bit13</i>	Genset CB Tripped	–	Not supported	<i>bit14</i>	Utility CB Tripped	–	Not supported	<i>bit15</i>	Emergency Stop	Y	Emergency Stop
Field	Description	Latch	Fault or Condition (Data Source)																																																																				
<i>bit0</i>	Check Genset	N	Common Alarm																																																																				
<i>bit1</i>	Ground Fault	–	Not supported																																																																				
<i>bit2</i>	High AC Voltage	Y	High AC Voltage																																																																				
<i>bit3</i>	Low AC Voltage	Y	Low AC Voltage																																																																				
<i>bit4</i>	Under Frequency	Y	Under Frequency																																																																				
<i>bit5</i>	Overload	Y	Overload																																																																				
<i>bit6</i>	Overcurrent	Y	Overcurrent Warning or Shutdown																																																																				
<i>bit7</i>	Short Circuit	Y	Short Circuit																																																																				
<i>bit8</i>	Reverse kW	Y	Reverse kW																																																																				
<i>bit9</i>	Reverse kVAR	Y	Loss of Field																																																																				
<i>bit10</i>	Fail to Sync	Y	Fail to Sync																																																																				
<i>bit11</i>	Fail to Close	Y	[Gen CB] Fail to Close																																																																				
<i>bit12</i>	Load Demand	N	Load Demand																																																																				
<i>bit13</i>	Genset CB Tripped	–	Not supported																																																																				
<i>bit14</i>	Utility CB Tripped	–	Not supported																																																																				
<i>bit15</i>	Emergency Stop	Y	Emergency Stop																																																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																																				
nvoAnnunExtended (Continued)	SNVT_state (2 bytes)	GLC	<p>Output used to annunciate the extended genset alarms to the annunciator. All extended alarms are “latched” by the GLC and remain set until the corresponding event is inactive <u>and</u> the genset is reset. A list of GLC events is listed in Table F-6.</p> <table border="1"> <thead> <tr> <th data-bbox="1066 347 1136 373">Field</th> <th data-bbox="1136 347 1360 373">Description</th> <th data-bbox="1360 347 1465 373">Latch</th> <th data-bbox="1465 347 1955 373">Event(s)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>N</td> <td>Common Warning or Shutdown Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Ground Fault</td> <td>Y</td> <td>Ground Fault</td> </tr> <tr> <td><i>bit2</i></td> <td>High AC Voltage</td> <td>Y</td> <td>High AC Voltage</td> </tr> <tr> <td><i>bit3</i></td> <td>Low AC Voltage</td> <td>Y</td> <td>Low AC Voltage</td> </tr> <tr> <td><i>bit4</i></td> <td>Under Frequency</td> <td>Y</td> <td>Under Frequency</td> </tr> <tr> <td><i>bit5</i></td> <td>Overload</td> <td>Y</td> <td>Overload</td> </tr> <tr> <td><i>bit6</i></td> <td>Overcurrent</td> <td>Y</td> <td>Overcurrent Warning or Shutdown</td> </tr> <tr> <td><i>bit7</i></td> <td>Short Circuit</td> <td>Y</td> <td>Short Circuit</td> </tr> <tr> <td><i>bit8</i></td> <td>Reverse kW</td> <td>Y</td> <td>Reverse kW</td> </tr> <tr> <td><i>bit9</i></td> <td>Reverse kVAR</td> <td>Y</td> <td>Reverse kVAR</td> </tr> <tr> <td><i>bit10</i></td> <td>Fail to Sync</td> <td>Y</td> <td>Fail to Sync</td> </tr> <tr> <td><i>bit11</i></td> <td>Fail to Close</td> <td>Y</td> <td>[Gen CB] Fail to Close</td> </tr> <tr> <td><i>bit12</i></td> <td>Load Demand</td> <td>N</td> <td>Load Demand Stop</td> </tr> <tr> <td><i>bit13</i></td> <td>Genset CB Tripped</td> <td>Y</td> <td>Genset CB Tripped</td> </tr> <tr> <td><i>bit14</i></td> <td>Utility CB Tripped</td> <td>Y</td> <td><configurable></td> </tr> <tr> <td><i>bit15</i></td> <td>Emergency Stop</td> <td>Y</td> <td>Local or Remote Emergency Stop</td> </tr> </tbody> </table>	Field	Description	Latch	Event(s)	<i>bit0</i>	Check Genset	N	Common Warning or Shutdown Alarm	<i>bit1</i>	Ground Fault	Y	Ground Fault	<i>bit2</i>	High AC Voltage	Y	High AC Voltage	<i>bit3</i>	Low AC Voltage	Y	Low AC Voltage	<i>bit4</i>	Under Frequency	Y	Under Frequency	<i>bit5</i>	Overload	Y	Overload	<i>bit6</i>	Overcurrent	Y	Overcurrent Warning or Shutdown	<i>bit7</i>	Short Circuit	Y	Short Circuit	<i>bit8</i>	Reverse kW	Y	Reverse kW	<i>bit9</i>	Reverse kVAR	Y	Reverse kVAR	<i>bit10</i>	Fail to Sync	Y	Fail to Sync	<i>bit11</i>	Fail to Close	Y	[Gen CB] Fail to Close	<i>bit12</i>	Load Demand	N	Load Demand Stop	<i>bit13</i>	Genset CB Tripped	Y	Genset CB Tripped	<i>bit14</i>	Utility CB Tripped	Y	<configurable>	<i>bit15</i>	Emergency Stop	Y	Local or Remote Emergency Stop
Field	Description	Latch	Event(s)																																																																				
<i>bit0</i>	Check Genset	N	Common Warning or Shutdown Alarm																																																																				
<i>bit1</i>	Ground Fault	Y	Ground Fault																																																																				
<i>bit2</i>	High AC Voltage	Y	High AC Voltage																																																																				
<i>bit3</i>	Low AC Voltage	Y	Low AC Voltage																																																																				
<i>bit4</i>	Under Frequency	Y	Under Frequency																																																																				
<i>bit5</i>	Overload	Y	Overload																																																																				
<i>bit6</i>	Overcurrent	Y	Overcurrent Warning or Shutdown																																																																				
<i>bit7</i>	Short Circuit	Y	Short Circuit																																																																				
<i>bit8</i>	Reverse kW	Y	Reverse kW																																																																				
<i>bit9</i>	Reverse kVAR	Y	Reverse kVAR																																																																				
<i>bit10</i>	Fail to Sync	Y	Fail to Sync																																																																				
<i>bit11</i>	Fail to Close	Y	[Gen CB] Fail to Close																																																																				
<i>bit12</i>	Load Demand	N	Load Demand Stop																																																																				
<i>bit13</i>	Genset CB Tripped	Y	Genset CB Tripped																																																																				
<i>bit14</i>	Utility CB Tripped	Y	<configurable>																																																																				
<i>bit15</i>	Emergency Stop	Y	Local or Remote Emergency Stop																																																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																			
		PCC 2100 NCM	<p>Output used to annunciate the extended genset alarms to the annunciator. All extended alarms are “latched” by the device and remain set until the corresponding event becomes inactive <u>and</u> the genset is reset.</p> <table border="0"> <thead> <tr> <th data-bbox="1066 318 1136 345">Field</th> <th data-bbox="1136 318 1423 345">Description</th> <th data-bbox="1423 318 1955 345">Fault or Condition (Data Source)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>Common Warning or Shutdown Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Ground Fault</td> <td>Must be configured by user</td> </tr> <tr> <td><i>bit2</i></td> <td>High AC Voltage</td> <td>High AC Voltage</td> </tr> <tr> <td><i>bit3</i></td> <td>Low AC Voltage</td> <td>Low AC Voltage</td> </tr> <tr> <td><i>bit4</i></td> <td>Under Frequency</td> <td>Under Frequency</td> </tr> <tr> <td><i>bit5</i></td> <td>Overload</td> <td>Overload</td> </tr> <tr> <td><i>bit6</i></td> <td>Overcurrent</td> <td>Overcurrent Warning or Shutdown</td> </tr> <tr> <td><i>bit7</i></td> <td>Short Circuit</td> <td>Short Circuit</td> </tr> <tr> <td><i>bit8</i></td> <td>Reverse kW</td> <td>Reverse kW</td> </tr> <tr> <td><i>bit9</i></td> <td>Reverse kVAR</td> <td>Reverse kVAR</td> </tr> <tr> <td><i>bit10</i></td> <td>Fail to Sync</td> <td>Not Supported</td> </tr> <tr> <td><i>bit11</i></td> <td>Fail to Close</td> <td>Fail to Close – Genset CB or Utility CB</td> </tr> <tr> <td><i>bit12</i></td> <td>Load Demand</td> <td>Not Supported</td> </tr> <tr> <td><i>bit13</i></td> <td>Genset CB Tripped</td> <td>Must be configured by user</td> </tr> <tr> <td><i>bit14</i></td> <td>Utility CB Tripped</td> <td>Must be configured by user</td> </tr> <tr> <td><i>bit15</i></td> <td>Emergency Stop</td> <td>Emergency Stop – Local Emergency Stop – Remote</td> </tr> </tbody> </table>	Field	Description	Fault or Condition (Data Source)	<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm	<i>bit1</i>	Ground Fault	Must be configured by user	<i>bit2</i>	High AC Voltage	High AC Voltage	<i>bit3</i>	Low AC Voltage	Low AC Voltage	<i>bit4</i>	Under Frequency	Under Frequency	<i>bit5</i>	Overload	Overload	<i>bit6</i>	Overcurrent	Overcurrent Warning or Shutdown	<i>bit7</i>	Short Circuit	Short Circuit	<i>bit8</i>	Reverse kW	Reverse kW	<i>bit9</i>	Reverse kVAR	Reverse kVAR	<i>bit10</i>	Fail to Sync	Not Supported	<i>bit11</i>	Fail to Close	Fail to Close – Genset CB or Utility CB	<i>bit12</i>	Load Demand	Not Supported	<i>bit13</i>	Genset CB Tripped	Must be configured by user	<i>bit14</i>	Utility CB Tripped	Must be configured by user	<i>bit15</i>	Emergency Stop	Emergency Stop – Local Emergency Stop – Remote
Field	Description	Fault or Condition (Data Source)																																																				
<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm																																																				
<i>bit1</i>	Ground Fault	Must be configured by user																																																				
<i>bit2</i>	High AC Voltage	High AC Voltage																																																				
<i>bit3</i>	Low AC Voltage	Low AC Voltage																																																				
<i>bit4</i>	Under Frequency	Under Frequency																																																				
<i>bit5</i>	Overload	Overload																																																				
<i>bit6</i>	Overcurrent	Overcurrent Warning or Shutdown																																																				
<i>bit7</i>	Short Circuit	Short Circuit																																																				
<i>bit8</i>	Reverse kW	Reverse kW																																																				
<i>bit9</i>	Reverse kVAR	Reverse kVAR																																																				
<i>bit10</i>	Fail to Sync	Not Supported																																																				
<i>bit11</i>	Fail to Close	Fail to Close – Genset CB or Utility CB																																																				
<i>bit12</i>	Load Demand	Not Supported																																																				
<i>bit13</i>	Genset CB Tripped	Must be configured by user																																																				
<i>bit14</i>	Utility CB Tripped	Must be configured by user																																																				
<i>bit15</i>	Emergency Stop	Emergency Stop – Local Emergency Stop – Remote																																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																			
nvoAnnunExtended (Continued)	SNVT_state (2 bytes)	PC ATS NCM	<p>Output used to annunciate the extended ATS alarms to the annunciator. Some extended events are "latched" by the NCM and the corresponding bit remains set until the event becomes inactive <u>and</u> the transfer switch is reset. Those bits which are not latched are reset when the corresponding event becomes inactive.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latched</th> </tr> </thead> <tbody> <tr><td><i>bit0</i></td><td>Source 1 Available</td><td>N</td></tr> <tr><td><i>bit1</i></td><td>Source 2 Available</td><td>N</td></tr> <tr><td><i>bit2</i></td><td>Source 1 Connected</td><td>N</td></tr> <tr><td><i>bit3</i></td><td>Source 2 Connected</td><td>N</td></tr> <tr><td><i>bit4</i></td><td>ATS Common Alarm</td><td>N</td></tr> <tr><td><i>bit5</i></td><td>Not In Auto</td><td>N</td></tr> <tr><td><i>bit6</i></td><td>Test/Exercise in Progress</td><td>N</td></tr> <tr><td><i>bit7</i></td><td>Low ATS Battery</td><td>N</td></tr> <tr><td><i>bit8</i></td><td>Load Shed</td><td>Y</td></tr> <tr><td><i>bit9</i></td><td>Transfer Inhibit</td><td>N</td></tr> <tr><td><i>bit10</i></td><td>Retransfer Inhibit</td><td>N</td></tr> <tr><td><i>bit11</i></td><td>Fail to Close</td><td>N</td></tr> <tr><td><i>bit12</i></td><td>Fail to Disconnect</td><td>Y</td></tr> <tr><td><i>bit13</i></td><td>Fail to Sync</td><td>Y</td></tr> <tr><td><i>bit14</i></td><td>Bypass to Source 1</td><td>N</td></tr> <tr><td><i>bit15</i></td><td>Bypass to Source 2</td><td>N</td></tr> </tbody> </table>	Field	Description	Latched	<i>bit0</i>	Source 1 Available	N	<i>bit1</i>	Source 2 Available	N	<i>bit2</i>	Source 1 Connected	N	<i>bit3</i>	Source 2 Connected	N	<i>bit4</i>	ATS Common Alarm	N	<i>bit5</i>	Not In Auto	N	<i>bit6</i>	Test/Exercise in Progress	N	<i>bit7</i>	Low ATS Battery	N	<i>bit8</i>	Load Shed	Y	<i>bit9</i>	Transfer Inhibit	N	<i>bit10</i>	Retransfer Inhibit	N	<i>bit11</i>	Fail to Close	N	<i>bit12</i>	Fail to Disconnect	Y	<i>bit13</i>	Fail to Sync	Y	<i>bit14</i>	Bypass to Source 1	N	<i>bit15</i>	Bypass to Source 2	N
		Field	Description	Latched																																																		
<i>bit0</i>	Source 1 Available	N																																																				
<i>bit1</i>	Source 2 Available	N																																																				
<i>bit2</i>	Source 1 Connected	N																																																				
<i>bit3</i>	Source 2 Connected	N																																																				
<i>bit4</i>	ATS Common Alarm	N																																																				
<i>bit5</i>	Not In Auto	N																																																				
<i>bit6</i>	Test/Exercise in Progress	N																																																				
<i>bit7</i>	Low ATS Battery	N																																																				
<i>bit8</i>	Load Shed	Y																																																				
<i>bit9</i>	Transfer Inhibit	N																																																				
<i>bit10</i>	Retransfer Inhibit	N																																																				
<i>bit11</i>	Fail to Close	N																																																				
<i>bit12</i>	Fail to Disconnect	Y																																																				
<i>bit13</i>	Fail to Sync	Y																																																				
<i>bit14</i>	Bypass to Source 1	N																																																				
<i>bit15</i>	Bypass to Source 2	N																																																				
CCM-T	<p>Output used to annunciate the extended ATS alarms to the annunciator. Some extended events are "latched" by the CCM-T and the corresponding bit remains set until the event becomes inactive <u>and</u> the transfer switch is reset. Those bits which are not latched are reset when the corresponding event becomes inactive.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr><td><i>bit0</i></td><td>Source 1 Available</td><td>1</td></tr> <tr><td><i>bit1</i></td><td>Source 2 Available</td><td>2</td></tr> <tr><td><i>bit2</i></td><td>Source 1 Connected</td><td>3</td></tr> <tr><td><i>bit3</i></td><td>Source 2 Connected</td><td>4</td></tr> <tr><td><i>bit4</i></td><td>ATS Common Alarm</td><td>13</td></tr> <tr><td><i>bit5</i></td><td>Not In Auto</td><td>14</td></tr> <tr><td><i>bit6</i></td><td>Test/Exercise in Progress</td><td>5</td></tr> <tr><td><i>bit7..13</i></td><td>NA</td><td>Not Supported</td></tr> <tr><td><i>bit14</i></td><td>Bypass to Source 1</td><td>11</td></tr> <tr><td><i>bit15</i></td><td>Bypass to Source 2</td><td>12</td></tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	Source 1 Available	1	<i>bit1</i>	Source 2 Available	2	<i>bit2</i>	Source 1 Connected	3	<i>bit3</i>	Source 2 Connected	4	<i>bit4</i>	ATS Common Alarm	13	<i>bit5</i>	Not In Auto	14	<i>bit6</i>	Test/Exercise in Progress	5	<i>bit7..13</i>	NA	Not Supported	<i>bit14</i>	Bypass to Source 1	11	<i>bit15</i>	Bypass to Source 2	12																				
Field	Description	Discrete Input																																																				
<i>bit0</i>	Source 1 Available	1																																																				
<i>bit1</i>	Source 2 Available	2																																																				
<i>bit2</i>	Source 1 Connected	3																																																				
<i>bit3</i>	Source 2 Connected	4																																																				
<i>bit4</i>	ATS Common Alarm	13																																																				
<i>bit5</i>	Not In Auto	14																																																				
<i>bit6</i>	Test/Exercise in Progress	5																																																				
<i>bit7..13</i>	NA	Not Supported																																																				
<i>bit14</i>	Bypass to Source 1	11																																																				
<i>bit15</i>	Bypass to Source 2	12																																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																		
nvoAnnunExtended (Continued)	SNVT_state (2 bytes)	CCM-G	<p>Output used to annunciate the extended genset alarms to the annunciator. All extended alarms are "latched" by the CCM-G and remain set until the event becomes inactive <u>and</u> the genset is reset.</p> <table border="0"> <thead> <tr> <th data-bbox="1062 321 1291 347">Field</th> <th data-bbox="1291 321 1961 347">Discrete Input</th> </tr> </thead> <tbody> <tr><td><i>bit0</i></td><td>17</td></tr> <tr><td><i>bit1</i></td><td>18</td></tr> <tr><td><i>bit2</i></td><td>19</td></tr> <tr><td><i>bit3</i></td><td>20</td></tr> <tr><td><i>bit4</i></td><td>21</td></tr> <tr><td><i>bit5</i></td><td>22</td></tr> <tr><td><i>bit6</i></td><td>23</td></tr> <tr><td><i>bit7</i></td><td>24</td></tr> <tr><td><i>bit8</i></td><td>25</td></tr> <tr><td><i>bit9</i></td><td>26</td></tr> <tr><td><i>bit10</i></td><td>27</td></tr> <tr><td><i>bit11</i></td><td>28</td></tr> <tr><td><i>bit12</i></td><td>29</td></tr> <tr><td><i>bit13</i></td><td>30</td></tr> <tr><td><i>bit14</i></td><td>31</td></tr> <tr><td><i>bit15</i></td><td>32</td></tr> </tbody> </table>	Field	Discrete Input	<i>bit0</i>	17	<i>bit1</i>	18	<i>bit2</i>	19	<i>bit3</i>	20	<i>bit4</i>	21	<i>bit5</i>	22	<i>bit6</i>	23	<i>bit7</i>	24	<i>bit8</i>	25	<i>bit9</i>	26	<i>bit10</i>	27	<i>bit11</i>	28	<i>bit12</i>	29	<i>bit13</i>	30	<i>bit14</i>	31	<i>bit15</i>	32
Field	Discrete Input																																				
<i>bit0</i>	17																																				
<i>bit1</i>	18																																				
<i>bit2</i>	19																																				
<i>bit3</i>	20																																				
<i>bit4</i>	21																																				
<i>bit5</i>	22																																				
<i>bit6</i>	23																																				
<i>bit7</i>	24																																				
<i>bit8</i>	25																																				
<i>bit9</i>	26																																				
<i>bit10</i>	27																																				
<i>bit11</i>	28																																				
<i>bit12</i>	29																																				
<i>bit13</i>	30																																				
<i>bit14</i>	31																																				
<i>bit15</i>	32																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																			
nvoAnnunNFPA110	SNVT_state (2 bytes)	GCM, GLC, PCC 2100 NCM	<p>Output used to annunciate the NFPA-110 alarms to the annunciator. Some of the NFPA-110 alarms are “latched” by the NCM and remain set until the corresponding event becomes inactive and the genset is reset. Alarms that are not latched are set when the event is active and reset when the event is inactive. <i>bit0</i> is the MSB.</p> <table border="0"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Event(s)</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>Common Warning or Shutdown Alarm</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>Genset Connected</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>Ready To Load (Genset Available)</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>Not In Auto</td> </tr> <tr> <td><i>bit4</i></td> <td>High Battery Voltage</td> <td>High Battery Voltage</td> </tr> <tr> <td><i>bit5</i></td> <td>Low Battery Voltage</td> <td>Low Battery Voltage Weak Battery Dead Battery</td> </tr> <tr> <td><i>bit6</i></td> <td>Charger AC Failure</td> <td>Must be configured by user.</td> </tr> <tr> <td><i>bit7</i></td> <td>Fail To Start</td> <td>Fail to Start Fail to Crank</td> </tr> <tr> <td><i>bit8</i></td> <td>Low Coolant Temperature</td> <td>Low Coolant Temperature</td> </tr> <tr> <td><i>bit9</i></td> <td>Pre-High Engine Temperature</td> <td>High Engine Temperature Warning High Oil Temperature Warning</td> </tr> <tr> <td><i>bit10</i></td> <td>High Engine Temperature</td> <td>High Engine Temperature Shutdown</td> </tr> <tr> <td><i>bit11</i></td> <td>Pre-Low Oil Pressure</td> <td>Low Oil Pressure Warning</td> </tr> <tr> <td><i>bit12</i></td> <td>Low Oil Pressure</td> <td>Low Oil Pressure Shutdown</td> </tr> <tr> <td><i>bit13</i></td> <td>Overspeed</td> <td>Overspeed Overfrequency</td> </tr> <tr> <td><i>bit14</i></td> <td>Low Coolant Level</td> <td>Low Coolant Level Warning Low Coolant Level Shutdown</td> </tr> <tr> <td><i>bit15</i></td> <td>Low Fuel Level</td> <td>Must be configured by user.</td> </tr> </tbody> </table>	Field	Description	Event(s)	<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm	<i>bit1</i>	Genset Supplying Load	Genset Connected	<i>bit2</i>	Genset Running	Ready To Load (Genset Available)	<i>bit3</i>	Not In Auto	Not In Auto	<i>bit4</i>	High Battery Voltage	High Battery Voltage	<i>bit5</i>	Low Battery Voltage	Low Battery Voltage Weak Battery Dead Battery	<i>bit6</i>	Charger AC Failure	Must be configured by user.	<i>bit7</i>	Fail To Start	Fail to Start Fail to Crank	<i>bit8</i>	Low Coolant Temperature	Low Coolant Temperature	<i>bit9</i>	Pre-High Engine Temperature	High Engine Temperature Warning High Oil Temperature Warning	<i>bit10</i>	High Engine Temperature	High Engine Temperature Shutdown	<i>bit11</i>	Pre-Low Oil Pressure	Low Oil Pressure Warning	<i>bit12</i>	Low Oil Pressure	Low Oil Pressure Shutdown	<i>bit13</i>	Overspeed	Overspeed Overfrequency	<i>bit14</i>	Low Coolant Level	Low Coolant Level Warning Low Coolant Level Shutdown	<i>bit15</i>	Low Fuel Level	Must be configured by user.
Field	Description	Event(s)																																																				
<i>bit0</i>	Check Genset	Common Warning or Shutdown Alarm																																																				
<i>bit1</i>	Genset Supplying Load	Genset Connected																																																				
<i>bit2</i>	Genset Running	Ready To Load (Genset Available)																																																				
<i>bit3</i>	Not In Auto	Not In Auto																																																				
<i>bit4</i>	High Battery Voltage	High Battery Voltage																																																				
<i>bit5</i>	Low Battery Voltage	Low Battery Voltage Weak Battery Dead Battery																																																				
<i>bit6</i>	Charger AC Failure	Must be configured by user.																																																				
<i>bit7</i>	Fail To Start	Fail to Start Fail to Crank																																																				
<i>bit8</i>	Low Coolant Temperature	Low Coolant Temperature																																																				
<i>bit9</i>	Pre-High Engine Temperature	High Engine Temperature Warning High Oil Temperature Warning																																																				
<i>bit10</i>	High Engine Temperature	High Engine Temperature Shutdown																																																				
<i>bit11</i>	Pre-Low Oil Pressure	Low Oil Pressure Warning																																																				
<i>bit12</i>	Low Oil Pressure	Low Oil Pressure Shutdown																																																				
<i>bit13</i>	Overspeed	Overspeed Overfrequency																																																				
<i>bit14</i>	Low Coolant Level	Low Coolant Level Warning Low Coolant Level Shutdown																																																				
<i>bit15</i>	Low Fuel Level	Must be configured by user.																																																				

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																	
nvoAnnunNFPA110 (Continued)	SNVT_state (2 bytes)	PC ATS NCM	<p>Output used to annunciate the NFPA-110 states to the annunciator. All NFPA-110 data is obtained through event announcements. The corresponding bit is set when the event is active and reset when the event is inactive. The network variable must be declared first to make sure it is assigned index 0.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Latched</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>ATS Common Alarm</td> <td>N</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>N</td> </tr> <tr> <td><i>bit2</i></td> <td>NA</td> <td>-</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>N</td> </tr> <tr> <td><i>bit4..bit5</i></td> <td>NA</td> <td>-</td> </tr> <tr> <td><i>bit6</i></td> <td>Charger AC Failure</td> <td>Y</td> </tr> <tr> <td><i>bit7..bit15</i></td> <td>NA</td> <td>-</td> </tr> </tbody> </table>	Field	Description	Latched	<i>bit0</i>	ATS Common Alarm	N	<i>bit1</i>	Genset Supplying Load	N	<i>bit2</i>	NA	-	<i>bit3</i>	Not In Auto	N	<i>bit4..bit5</i>	NA	-	<i>bit6</i>	Charger AC Failure	Y	<i>bit7..bit15</i>	NA	-																									
		Field	Description	Latched																																																
<i>bit0</i>	ATS Common Alarm	N																																																		
<i>bit1</i>	Genset Supplying Load	N																																																		
<i>bit2</i>	NA	-																																																		
<i>bit3</i>	Not In Auto	N																																																		
<i>bit4..bit5</i>	NA	-																																																		
<i>bit6</i>	Charger AC Failure	Y																																																		
<i>bit7..bit15</i>	NA	-																																																		
CCM-G	<p>Output used to annunciate the NFPA-110 alarms to the annunciator. <i>bit0</i> (Normal Power) and <i>bit1</i> (Genset Supplying Load) are not supplied by the genset (with CCM).</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Hardware Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>Check Genset</td> <td>17</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>Not supported</td> </tr> <tr> <td><i>bit2</i></td> <td>Genset Running</td> <td>28</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>29,30</td> </tr> <tr> <td><i>bit4</i></td> <td>High Battery Voltage</td> <td>20</td> </tr> <tr> <td><i>bit5</i></td> <td>Low Battery Voltage</td> <td>21</td> </tr> <tr> <td><i>bit6</i></td> <td>Charger AC Failure</td> <td>31</td> </tr> <tr> <td><i>bit7</i></td> <td>Fail to Start</td> <td>22</td> </tr> <tr> <td><i>bit8</i></td> <td>Low Coolant Temperature</td> <td>19</td> </tr> <tr> <td><i>bit9</i></td> <td>Pre-High Engine Temperature</td> <td>26</td> </tr> <tr> <td><i>bit10</i></td> <td>High Engine Temperature</td> <td>24</td> </tr> <tr> <td><i>bit11</i></td> <td>Pre-Low Oil Pressure</td> <td>27</td> </tr> <tr> <td><i>bit12</i></td> <td>Low Oil Pressure</td> <td>25</td> </tr> <tr> <td><i>bit13</i></td> <td>Overspeed</td> <td>23</td> </tr> <tr> <td><i>bit14</i></td> <td>Low Coolant Level</td> <td>32</td> </tr> <tr> <td><i>bit15</i></td> <td>Low Fuel Level</td> <td>18</td> </tr> </tbody> </table>	Field	Description	Hardware Input	<i>bit0</i>	Check Genset	17	<i>bit1</i>	Genset Supplying Load	Not supported	<i>bit2</i>	Genset Running	28	<i>bit3</i>	Not In Auto	29,30	<i>bit4</i>	High Battery Voltage	20	<i>bit5</i>	Low Battery Voltage	21	<i>bit6</i>	Charger AC Failure	31	<i>bit7</i>	Fail to Start	22	<i>bit8</i>	Low Coolant Temperature	19	<i>bit9</i>	Pre-High Engine Temperature	26	<i>bit10</i>	High Engine Temperature	24	<i>bit11</i>	Pre-Low Oil Pressure	27	<i>bit12</i>	Low Oil Pressure	25	<i>bit13</i>	Overspeed	23	<i>bit14</i>	Low Coolant Level	32	<i>bit15</i>	Low Fuel Level	18
Field	Description	Hardware Input																																																		
<i>bit0</i>	Check Genset	17																																																		
<i>bit1</i>	Genset Supplying Load	Not supported																																																		
<i>bit2</i>	Genset Running	28																																																		
<i>bit3</i>	Not In Auto	29,30																																																		
<i>bit4</i>	High Battery Voltage	20																																																		
<i>bit5</i>	Low Battery Voltage	21																																																		
<i>bit6</i>	Charger AC Failure	31																																																		
<i>bit7</i>	Fail to Start	22																																																		
<i>bit8</i>	Low Coolant Temperature	19																																																		
<i>bit9</i>	Pre-High Engine Temperature	26																																																		
<i>bit10</i>	High Engine Temperature	24																																																		
<i>bit11</i>	Pre-Low Oil Pressure	27																																																		
<i>bit12</i>	Low Oil Pressure	25																																																		
<i>bit13</i>	Overspeed	23																																																		
<i>bit14</i>	Low Coolant Level	32																																																		
<i>bit15</i>	Low Fuel Level	18																																																		

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																											
nvoAnnunNFPA110 (Continued)	SNVT_state (2 bytes)	CCM-T	<p>Output used to annunciate the NFPA-110 states to the annunciator. All NFPA-110 data is obtained through event announcements. The corresponding bit is set when the event is active and reset when the event is inactive. The network variable must be declared first to make sure it is assigned index 0.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Description</th> <th>Discrete Input</th> </tr> </thead> <tbody> <tr> <td><i>bit0</i></td> <td>ATS Common Alarm</td> <td>13</td> </tr> <tr> <td><i>bit1</i></td> <td>Genset Supplying Load</td> <td>4 (Source 2 connected)</td> </tr> <tr> <td><i>bit2</i></td> <td>NA</td> <td>Not supported.</td> </tr> <tr> <td><i>bit3</i></td> <td>Not In Auto</td> <td>14</td> </tr> <tr> <td><i>bit4</i></td> <td>High Gen Battery Voltage</td> <td>8</td> </tr> <tr> <td><i>bit5</i></td> <td>Low Gen Battery Voltage</td> <td>7</td> </tr> <tr> <td><i>bit6</i></td> <td>Charger AC Failure</td> <td>10</td> </tr> <tr> <td><i>bit7..bit15</i></td> <td>NA</td> <td>Not supported.</td> </tr> </tbody> </table>	Field	Description	Discrete Input	<i>bit0</i>	ATS Common Alarm	13	<i>bit1</i>	Genset Supplying Load	4 (Source 2 connected)	<i>bit2</i>	NA	Not supported.	<i>bit3</i>	Not In Auto	14	<i>bit4</i>	High Gen Battery Voltage	8	<i>bit5</i>	Low Gen Battery Voltage	7	<i>bit6</i>	Charger AC Failure	10	<i>bit7..bit15</i>	NA	Not supported.
Field	Description	Discrete Input																												
<i>bit0</i>	ATS Common Alarm	13																												
<i>bit1</i>	Genset Supplying Load	4 (Source 2 connected)																												
<i>bit2</i>	NA	Not supported.																												
<i>bit3</i>	Not In Auto	14																												
<i>bit4</i>	High Gen Battery Voltage	8																												
<i>bit5</i>	Low Gen Battery Voltage	7																												
<i>bit6</i>	Charger AC Failure	10																												
<i>bit7..bit15</i>	NA	Not supported.																												
nvoAnnunStatus	UNVT_AnnunStatus (24 bytes)	LSA	<p>Output proved to determine the status of the annunciator node. An external device can be used to read the lamp states (including color), error state, horn state, and state of the terminator switch.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Range</th> </tr> </thead> <tbody> <tr> <td><i>Lamp[0..20]</i></td> <td>structure (8 bit field)</td> <td></td> </tr> <tr> <td><i>bit7 (MSB)</i></td> <td>- flashing (1)</td> <td>0 - No Flash, 1 - Flash</td> </tr> <tr> <td><i>bit2-6</i></td> <td>- not used (5)</td> <td>NA</td> </tr> <tr> <td><i>bit0-1</i></td> <td>- color (2)</td> <td>0 - Off, 1 - Green, 2 - Red, 3 - Amber</td> </tr> <tr> <td><i>network</i></td> <td>same structure as <i>.lamp</i> where:</td> <td>1 - green/solid (Bound, OK) 3 - amber/solid (Not Bound) 130 - red/flashing (Bound/Error)</td> </tr> <tr> <td><i>horn</i></td> <td>u8</td> <td>0 - Off, 1 - On</td> </tr> <tr> <td><i>term_switch</i></td> <td>u8</td> <td>0 - Off, 1 - On</td> </tr> </tbody> </table>	Field	Type	Range	<i>Lamp[0..20]</i>	structure (8 bit field)		<i>bit7 (MSB)</i>	- flashing (1)	0 - No Flash, 1 - Flash	<i>bit2-6</i>	- not used (5)	NA	<i>bit0-1</i>	- color (2)	0 - Off, 1 - Green, 2 - Red, 3 - Amber	<i>network</i>	same structure as <i>.lamp</i> where:	1 - green/solid (Bound, OK) 3 - amber/solid (Not Bound) 130 - red/flashing (Bound/Error)	<i>horn</i>	u8	0 - Off, 1 - On	<i>term_switch</i>	u8	0 - Off, 1 - On			
Field	Type	Range																												
<i>Lamp[0..20]</i>	structure (8 bit field)																													
<i>bit7 (MSB)</i>	- flashing (1)	0 - No Flash, 1 - Flash																												
<i>bit2-6</i>	- not used (5)	NA																												
<i>bit0-1</i>	- color (2)	0 - Off, 1 - Green, 2 - Red, 3 - Amber																												
<i>network</i>	same structure as <i>.lamp</i> where:	1 - green/solid (Bound, OK) 3 - amber/solid (Not Bound) 130 - red/flashing (Bound/Error)																												
<i>horn</i>	u8	0 - Off, 1 - On																												
<i>term_switch</i>	u8	0 - Off, 1 - On																												
nvoATSSStatus	UNVT_ats_status (30 bytes)	PCC 2100 NCM	<p>Output used to provide the current operating status of this transfer switch for other devices on the network network (GLC gensets, PowerCommand transfer switches and Master Control). This output may be connected to many devices. The output is propagated regularly at the interval defined by the network configuration variable <i>nciMinSendTime</i>. Data for this output is obtained through event announcement and polling. See Table F-4e below.</p>																											

Table F-4e. PCC 2100 NCM Variable *nvoATSStatus*

Data Field	Type	Logical Address (Event)	Notes
<i>name_tag</i>	char[16]	Device Name Tag	
<i>device_type</i>	u16	NA	11 – (PCC 2100)
<i>mode</i> ¹	u8	AMF Mode	0 – Inactive 1 – Active 255 – Unknown
<i>active_id</i>	u8 (enum)	Active Transition Type	0 – None 1 – Engine Start A (Src2) 2 – Engine Start B (Src1) 3 – Normal to Emergency (TDNE) 4 – Emergency to Normal (TDEN) 5 – Engine Cooldown A (TDECA) 6 – Engine Cooldown B (TDECB) 7 – Program Transition (TDPT) 8 – Transfer Pend/ Elevator (TDEL) 255 – Unknown
<i>fault_code</i>	u16	NA	0xFFFF – Unknown
<i>fault_type</i>	u8	NA	0 – No Fault 1 – Warning 2 – Derate 3 – Shutdown w/cooldown 4 – Shutdown 255 – Unknown
<i>percent_amps</i> ²	u8 (SNVT_lev_cont)	NA	255 – Unknown
<i>total_kw</i>	s16	NA	0xFFFF – Unknown
<i>nfp110</i>	u16 (SNVT_state)	(Events)	See <i>nvoAnnunNFP110</i>
<i>extended</i>	u16 (SNVT_state)	(Events)	See Table F-4f below.
¹ This is read once at node reset when reading the NCM configuration trims.			
² The value returned by the controller must be clamped to the range of the SNVT by the NCM.			

Table F-4f. PCC 2100 NCM Variable *nvoATSStatus.extended*

.extended	Description	Event(s)
<i>bit0 (MSB)</i>	Source1 Available	Utility Available
<i>bit1</i>	Source2 Available	Ready To Load (Genset Available)
<i>bit2</i>	Source1 Connected	Utility Connected
<i>bit3</i>	Source2 Connected	Genset Connected
<i>bit4</i>	ATS Common Alarm	Not Supported
<i>bit5</i>	ATS Not In Auto	Not Supported
<i>bit6</i>	Test In Progress	AMF Test
<i>bit7</i>	ATS Low Battery	Not Supported
<i>bit8</i>	Load Shed	Not Supported
<i>bit9</i>	Transfer Inhibit	Genset CB Inhibit
<i>bit10</i>	Retransfer Inhibit	Utility CB Inhibit
<i>bit11</i>	Fail To Close	Fail To Close – Genset Fail To Close – Utility
<i>bit12</i>	Fail To Disconnect	Fail To Open – Genset Fail To Open – Utility
<i>bit13</i>	Fail To Sync	Not Supported
<i>bit14</i>	Bypass To Source 1	Not Supported
<i>bit15</i>	Bypass To Source 2	Not Supported

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoATSStatus (Continued)	UNVT_ats_status (30 bytes)	PC ATS NCM	Output used to provide the current operating status of this transfer switch for other devices on the network network (GLC gensets, PowerCommand transfer switches and Master Control). This output may be connected to many devices. The output is propagated regularly at the interval defined by the network configuration variable <i>nciMinSendTime</i> . Data for this output is obtained through event announcement and polling. See table F-4g below.

Table F-4g. PC ATS NCM Variable *nvoATSStatus*

Data Field	Type	Logical Adrs (Event)	Notes
<i>name_tag</i>	char[16]	Device Name Tag	
<i>device_type</i>	u16	NA	10 – PC ATS NCM
<i>mode</i> ¹	u8	ATS Configuration	0 – Test 1 – Utility/Gen 2 – Utility/Utility 3 – Gen/Gen 255 – Unknown
<i>active_id</i>	u8 (enum)	Active Time Delay	0 – None 1 – Engine Start A (Src2) 2 – Engine Start B (Src1) 3 – Normal to Emergency (TDNE) 4 – Emergency to Normal (TDEN) 5 – Engine Cooldown A (TDECA) 6 – Engine Cooldown B (TDECB) 7 – Program Transition (TDPT) 8 – Transfer Pend/Elevator (TDEL) 255 – Unknown
<i>fault_code</i>	u16	NA	Varies by device
<i>fault_type</i>	u8	NA	0 – No Fault 1 – Warning Fault 255 – Unknown
<i>percent_amps</i> ²	u8 (SNVT_lev_cont)	Load Amps % Total	<250 – <i>percent_amps</i> / 2% 251 – >125% 255 – Unknown
<i>total_kw</i>	s16	Load Total kW	
<i>nfp110</i>	u16 (SNVT_state)	(Events)	See <i>nvoAnnunNFP110</i>
<i>extended</i>	u16 (SNVT_state)	(Events)	See <i>nvoAnnunExtended</i>
¹ This is read once at node reset when reading the NCM configuration trims.			
² The value returned by the controller must be clamped to the range of the SNVT by the NCM.			

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoATSStatus (Continued)	UNVT_ats_status (30 bytes)	CCM-T	Output used to provide the current operating status of the ATS. Fault code field show the current, most severe fault of the ATS. See Table F-4h below.

Table F-4h. CCM-T Variable *nvoATSStatus*

Data Field	Type	Data Source	Notes	Default
name_tag	char[16]	nviNodeInfo.name_tag[16]		"CCM ATS"
device_type	u16	Hardcoded	7 – ATS w/CCM	7
mode	u8	NA	Not Supported	0xFF
active_td	u8	NA	Not Supported	0xFF
fault_code	u16	Discrete Input	1..32	0xFFFF
fault_type	u8	Discrete Configuration	0 – No Fault 1 – Warning 4 – Shutdown	0
percent_amps	u8 (SNVT_lev_cont)	NA	Not Supported	0xFF
total_kw	s16	nvoACDataLoad.total_kw		0x7FFF
nfpa110	u16 (SNVT_state)	nvoAnnunNFPA110	Synchronize on change	0
extended	u16 (SNVT_state)	nvoAnnunExtended	Synchronize on change	0

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoCalibData1	UNVT_ccm_data (16 bytes)	CCM-G, CCM-T	Output used by manufacturing to view calibrated analog values. It contains the calibrated values of analog channels 0 though 7.
nvoCalibData2	UNVT_ccm_data (16 bytes)	CCM-G, CCM-T	Output used by manufacturing to view calibrated analog values. It contains the calibrated values of analog channels 8 though 15.
nvoCalibData3	UNVT_ccm_data (6 bytes)	CCM-G	Output used by manufacturing to view calibrated analog values. It contains the calibrated values of analog channels 16 though 18.
nvoCustFault1...4	SNVT_switch 2 bytes)	GCM	Outputs sent by the Master Control to provide the status of control <i>Customer Faults 1..4</i> . State = 0 (Fault Inactive) or 1 (Fault Active)
nvoCustomStatus[0..4]	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used by the annunciator that allows you to define individual faults that you would like to annunciate or share with other equipment. These are intended to be the same as the control's front panel LEDs. When the <i>state</i> field is true (1), the fault which has be assigned to the status variable is either active or unacknowledged. When the <i>state</i> field is false (0), this fault is either inactive or has been acknowledged. The value field is not used. State: 0 (Fault Inactive) or 1 (Fault Active)
nvoCustomStatus[0..7]	SNVT_switch (2 bytes)	GLC	Outputs used by the annunciator that allow you to define individual faults that you would like to annunciate or share with other equipment. When the <i>state</i> field is true, the fault which has be assigned to the status variable is either active or the genset has not been reset. When the <i>state</i> field is false, this fault is either inactive or has been acknowledged. Thus, all custom status outputs are 'latched' until the genset is reset. State = 0 (Fault Inactive) or 1 (Fault Active)
nvoCustomStatus[0..8]	SNVT_switch (2 bytes)	DIM	Outputs used by all other devices to provide user-defined network status to the network. <i>nvoCustomStatus[0]</i> is a non-functional place holder that is not used. State = 0 (Inactive) or 1 (Active)
nvoCustomStatus [0..16]	SNVT_switch (2 bytes)	CCM-G	Output used by the annunciator to provide user-defined status to the network. Only the <i>state</i> field is used. The active state is configured with <i>nvi-CustInConfig.active[0..1]</i> . Discrete inputs 1..16. <i>nvoCustomStatus[0]</i> is a non-functional place holder that is not used. State = 0 (Inactive) or 1 (Active)
		CCM-T	Output used by the annunciator to provide user-defined status to the network. Only the <i>state</i> field is used. The active state is configured with <i>nvi-CustInConfig.active[2..3]</i> . Discrete inputs 17..32. <i>nvoCustomStatus[0]</i> is a non-functional place holder that is not used. State = 0 (Inactive) or 1 (Active)

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoFaultStatus	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100 NCM, CCM-G, CCM-T, PC ATS NCM	Output used by the annunciator to provide the device fault status. When the <i>state</i> field is true, the device has an active warning or shutdown alarm. When the <i>state</i> field is false, the device has no active faults or has been reset. State = 0 (No Faults) or 1 (Warning for Shutdown)
nvoGenACData	UNVT_ac_data (31 bytes)	GCM, GLC, PCC 2100 NCM, CCM-G	Output used to provide the instantaneous AC data of the genset for the Master Control. For a CCM-G, this output is also used by ModLon. For a GCM, GLC, and PCC 2100 NCM see Table F-4i. For a CCM-G, see Table F-4j.

Table F-4i. GCM, GLC, and PCC 2100 NCM Variable *nvoGenACData*

Field	Type	Notes
<i>freq</i>	u16 (SNVT_freq_hz)	
<i>total_pf</i>	s16 (SNVT_pwr_fact)	If Leading PF, total_pf = -Total PF
<i>total_kva</i>	s16 (1 kVA)	
<i>total_kw</i>	s16 (1 kW)	
<i>total_kvar</i>	s16 (1 kVAR)	
<i>volts_ab</i>	u16 (SNVT_volt_ac)	
<i>volts_bc</i>	u16 (SNVT_volt_ac)	
<i>volts_ca</i>	u16 (SNVT_volt_ac)	
<i>volts_a</i>	u16 (SNVT_volt_ac)	
<i>volts_b</i>	u16 (SNVT_volt_ac)	
<i>volts_c</i>	u16 (SNVT_volt_ac)	
<i>amps_a</i>	u16 (SNVT_amp_ac)	
<i>amps_b</i>	u16 (SNVT_amp_ac)	
<i>amps_c</i>	u16 (SNVT_amp_ac)	
<i>percent_amps_a</i>	u8 (SNVT_lev_cont)	Clamp at 125%.
<i>percent_amps_b</i>	u8 (SNVT_lev_cont)	Clamp at 125%.
<i>percent_amps_c</i>	u8 (SNVT_lev_cont)	Clamp at 125%.

Table F-4j. CCM-G Variable *nvoGenACData*

Field	Type	Data Source	Notes	Default
<i>freq</i>	u16 (SNVT_freq_hz)	IO_6		0xFFFF
<i>total_pf</i>	s16 (SNVT_pwr_fact)	Analog Inputs 6–8 IO_5 (leading/lag)	Negative if leading 0 if <i>freq</i> = 0.0	0x7FFF
<i>total_kva</i>	s16 (1 kVA)	Analog Inputs 0–8	0 if <i>freq</i> = 0.0	0x7FFF
<i>total_kw</i>	s16 (1 kW)	Analog Inputs 0–8	0 if <i>freq</i> = 0.0	0x7FFF
<i>total_kvar</i>	s16 (1 kVAR)	Analog Inputs 0–8	0 if <i>freq</i> = 0.0	0x7FFF
<i>volts_ab</i>	u16 (SNVT_volt_ac)		Not Supported	0xFFFF
<i>volts_bc</i>	u16 (SNVT_volt_ac)		Not Supported	0xFFFF
<i>volts_ca</i>	u16 (SNVT_volt_ac)		Not Supported	0xFFFF
<i>volts_a</i>	u16 (SNVT_volt_ac)	Analog Input 0		0xFFFF
<i>volts_b</i>	u16 (SNVT_volt_ac)	Analog Input 1		0xFFFF
<i>volts_c</i>	u16 (SNVT_volt_ac)	Analog Input 2		0xFFFF
<i>amps_a</i>	u16 (SNVT_amp_ac)	Analog Input 3		0xFFFF
<i>amps_b</i>	u16 (SNVT_amp_ac)	Analog Input 4		0xFFFF
<i>amps_c</i>	u16 (SNVT_amp_ac)	Analog Input 5		0xFFFF
<i>percent_amps_a</i>	u8 (SNVT_lev_cont)		Not Supported	0xFF
<i>percent_amps_b</i>	u8 (SNVT_lev_cont)		Not Supported	0xFF
<i>percent_amps_c</i>	u8 (SNVT_lev_cont)		Not Supported	0xFF

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenAvailable	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used by the annunciator to report that the genset is available (ready to load). When the <i>state</i> field is true (1), the genset is available. When the <i>state</i> field is false (0), the genset is not available. This output is nearly identical to <i>nvoRunStatus</i> . State = 0 (Genset Not Available) or 1 (Genset Available)
nvoGenConnected	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used by the GLC and Annunciator to report that the genset is connected to the load (Genset contact is closed). When the <i>state</i> field is true (1), the genset is connected to the load. When the <i>state</i> field is false (0), the genset is not connected to the load. State = 0 (Genset Not Connected) or 1 (Genset Connected)
nvoGenData	UNVT_ac_data (30 bytes)	GCM, GLC, PCC 2100 NCM	Output used II to provide instantaneous AC data of the genset. See Table F-4k.

Table F-4k. GCM, GLC, and PCC 2100 NCM Variable *nvoGenData*

Field	Type	Notes	Default
<i>volts_a</i>	u16 (SNVT_volt_ac)	Re-use	0
<i>volts_b</i>	u16 (SNVT_volt_ac)	Re-use	0
<i>volts_c</i>	u16 (SNVT_volt_ac)	Re-use	0
<i>freq</i>	u16 (SNVT_freq_hz)	Re-use	0
<i>amps_a</i>	u16 (SNVT_amp_ac)	Re-use	0
<i>amps_b</i>	u16 (SNVT_amp_ac)	Re-use	0
<i>amps_c</i>	u16 (SNVT_amp_ac)	Re-use	0
<i>percent_amps_a</i>	s16 (SNVT_lev_percent)	Clamp at 125%.	0
<i>percent_amps_b</i>	s16 (SNVT_lev_percent)	Clamp at 125%.	0
<i>percent_amps_c</i>	s16 (SNVT_lev_percent)	Clamp at 125%.	0
<i>total_pf</i>	s16 (SNVT_pwr_fact)	Re-use	0
<i>total_kw</i>	s16 (kW)	Re-use	0
<i>percent_kw</i>	s16 (SNVT_lev_percent)	Clamp at 125%.	0
<i>total_kvar</i>	s16 (kVAR)		0
<i>total_mwh</i>	u16 (MWh)		0

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenEngData	UNVT_gen_eng1 (30 bytes)	GCM, GLC, PCC 2100 NCM, CCM-G	Output used to provide the current operating data of the genset for the Master Control. It mainly contains engine and genset historical information. The spare temperature fields may be used for ambient, alternator, exhaust or intake temperatures. This output is used by the Master Control and, with a CCM-G, and ModLon. For a GCM, see Table F-4l. For a GLC, see Table F-4m. For a PCC 2100, see Table F-4n. For a CCM-G, see Table F-4o.

Table F-4l. GCM Variable *nvoGenEngData*

Field	Type	Notes	Default
<i>battery_volts</i>	s16 (SNVT_volt)		0x7FFF
<i>oil_press</i>	s16 (SNVT_press)		0x7FFF
<i>oil_temp</i>	u16 (SNVT_temp)		0xFFFF
<i>coolant_temp</i>	u16 (SNVT_temp)		0xFFFF
<i>misc_temp1</i>	u16 (SNVT_temp)	If not installed set to default.	0xFFFF
<i>misc_temp2</i>	u16 (SNVT_temp)	If not installed set to default.	0xFFFF
<i>fuel_rate</i>	u16 (SNVT_flow)	Not Supported	0xFFFF
<i>engine_rpm</i>	u16 (SNVT_rpm)		0xFFFF
<i>engine_starts</i>	u16 (SNVT_count)	'Successful' Starts	0xFFFF
<i>engine_runtime</i>	u32 (0.1 h)		0xFF..FF
<i>total_kwh</i>	u32 (kWh)		0xFF..FF
<i>total_fuel</i>	u32 (0.01 gal)	Not Supported	0xFF..FF

Table F-4m. GLC Variable *nvoGenEngData*

Field	Type	Data Source	Notes	Default
<i>battery_volts</i>	s16 (SNVT_volt)	Battery Voltage	Always valid	0x7FFF
<i>oil_press</i>	s16 (SNVT_press)	Oil Press Analog Input In Engineering Units Oil Pressure Sensor Status	0 = Valid, 1 = Invalid If 'Invalid', set to Default	0x7FFF
<i>oil_temp</i>	u16 (SNVT_temp)	Oil Temperature Oil Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>coolant_temp</i>	u16 (SNVT_temp)	Coolant Temperature Coolant Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>misc_temp1</i>	u16 (SNVT_temp)	Intake Temperature Intake Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>misc_temp2</i>	u16 (SNVT_temp)	Fuel Temperature Fuel Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>fuel_rate</i>	u16 (SNVT_flow)	Fuel Consumption Rate		0xFFFF
<i>engine_rpm</i>	u16 (SNVT_rpm)	Filtered Time Engine Speed		0xFFFF
<i>engine_starts</i>	u16 (SNVT_count)	Total Number Runs	'Successful' Starts	0xFFFF
<i>engine_runtime</i>	u32 (0.1 sec)	Engine Running Time		0xFF..FF
<i>total_kwh</i>	u32 (kWh)	Total kWh		0xFF..FF
<i>total_fuel</i>	u32 (0.01 gal)	Cumulative Fuel Consumption		0xFF..FF

Table F-4n. PCC 2100 NCM Variable *nvoGenEngData*

Field	Type	Data Source	Notes	Default
<i>battery_volts</i>	s16 (SNVT_volt)	Battery Voltage	Always valid	0x7FFF
<i>oil_press</i>	s16 (SNVT_press)	Oil Pressure Oil Pressure Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0x7FFF
<i>oil_temp</i>	u16 (SNVT_temp)	Oil Temperature Oil Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>coolant_temp</i>	u16 (SNVT_temp)	Coolant Temperature Coolant Temp Sensor Status	If 'Invalid', set to Default 0 = Valid, 1 = Invalid	0xFFFF
<i>misc_temp1</i>	u16 (SNVT_temp)		Not Supported	0xFFFF
<i>misc_temp2</i>	u16 (SNVT_temp)		Not Supported	0xFFFF
<i>fuel_rate</i>	u16 (0.01 gph)		Not Supported	0xFFFF
<i>engine_rpm</i>	u16 (SNVT_rpm)	Engine Speed		0xFFFF
<i>engine_starts</i>	u16 (SNVT_count)	Total Number of Runs		0xFFFF
<i>engine_runtime</i>	u32 (0.1 hr)	Total Engine Running Time		0xFF..FF
<i>total_kwh</i>	u32 (kWh)	Genset Total kWh		0xFF..FF
<i>total_fuel</i>	u32 (0.01 gal)		Not Supported	0xFF..FF

Table F-4o. CCM-G Variable *nvoGenEngData*

Field	Type	Data Source	Notes	Default
<i>battery_volts</i>	s16 (SNVT_volt)	Analog Input 15	Scaled to SNVT	0x7FFF
<i>oil_press</i>	s16 (SNVT_press)	Analog Input 12	Scaled to SNVT	0x7FFF
<i>oil_temp</i>	u16 (SNVT_temp)	Analog Input 10	Scaled to SNVT	0xFFFF
<i>coolant_temp</i>	u16 (SNVT_temp)	Analog Input 9	Scaled to SNVT	0xFFFF
<i>misc_temp1</i>	u16 (SNVT_temp)	Analog Input 11	Scaled to SNVT	0xFFFF
<i>misc_temp2</i>	u16 (SNVT_temp)	Analog Input 13	Scaled to SNVT	0xFFFF
<i>fuel_rate</i>	u16 (0.01 gph)	Analog Input 14	Scaled to SNVT	0xFFFF
<i>engine_rpm</i>	u16 (SNVT_rpm)		Scaled to SNVT	0xFFFF
<i>engine_starts</i>	u16 (SNVT_count)		Not Supported	0xFFFF
<i>engine_runtime</i>	u32 (0.1 sec)		Not Supported	0xFF..FF
<i>total_kwh</i>	u32 (kWh)		Not Supported	0xFF..FF
<i>total_fuel</i>	u32 (0.01 gal)		Not Supported	0xFF..FF

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenParaData	UNVT_gen_para (26 bytes)	GCM	Output used by the Master Control to provide the bus AC data and paralleling state of a paralleling genset for the Master Control. The genset provides all voltages. The Interval defined by <i>nciMinSendTime</i> . See Table F-4p below.

Table F-4p. GCM Variable *nvoGenParaData*

Field	Type	Notes	Default
<i>freq</i>	u16 (SNVT_freq_hz)	Bus Hz	0xFFFF
<i>volts_ab</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_bc</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_ca</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_a</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_b</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_c</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>customer_faults</i> .bit0 .bit1 .bit2 .bit3	u16 (SNVT_state)	Customer Fault 1 Customer Fault 2 Customer Fault 3 Customer Fault 4	All 0
<i>network_faults</i>	u16 (SNVT_state)	Not Supported	All 0
<i>custom</i>	u16 (SNVT_state)		All 0
<i>es_state</i>	u8 (enum)	0 – Standby 1 – Dead Bus Close 2 – Synchronize 3 – Load Share 4 – Load Govern 255 – Unknown	0xFF
<i>ls_state</i>	u8	Not Supported	0xFF
<i>lg_state_kw</i>	u8	Not Supported	0xFF
<i>lg_state_kvar</i>	u8	Not Supported	0xFF
<i>gen_cb</i>	u8	0 – Open 1 – Closed 2 – Not Avail. (Single) 3 – Inhibited 255 – Unknown	0xFF
<i>util_cb</i>	u8	Not Supported	0xFF

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenParaData (Continued)	UNVT_gen_para (27 bytes)	GLC	Output used by the Master Control to provide the bus AC data and paralleling state of a paralleling genset for the Master Control. The PCC 3200 genset provides all voltages. The Interval defined by <i>nciMinSendTime</i> and each event announcement. See Table F-4q below.

Table F-4q. GLC Variable *nvoGenParaData*

Field	Type	Notes	Default
<i>freq</i>	u16 (SNVT_freq_hz)	Bus Hz	0xFFFF
<i>volts_ab</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_bc</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_ca</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_a</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_b</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>volts_c</i>	u16 (SNVT_volt_ac)	Bus Volts	0xFFFF
<i>customer_faults</i> .bit0 .bit1 .bit2 .bit3	u16 (SNVT_state)		All 0
<i>network_faults</i> .bit0 .bit1 .bit2 .bit3	u16 (SNVT_state)		All 0
<i>network_faults</i> .bit0 .bit1 .bit2 .bit3	u16 (SNVT_state)		All 0
<i>custom</i>	u16 (SNVT_state)	See <i>nvoAnnunCustom</i>	All 0
<i>es_state</i>	u8	0 – Standby 1 – Dead Bus Close 2 – Synchronize 3 – Load Share 4 – Load Govern 255 – Unknown	0xFF

Table F-4q. GLC Variable *nvoGenParaData*

Field	Type	Notes	Default
<i>ls_state</i>	u8	0 – Not in Load Share 1 – Track Load 2 – Ramp Load 3 – Ramp Unload 4 – Load Dmd Shutdn 255 – Unknown	0xFF
<i>lg_state_kw</i>	u8	0 – Not Applicable 1 – Ramp Load 2 – Track Target 3 – Ramp Unload 4 – Ramp Unload Done 255 – Unknown	0xFF
<i>lg_state_kvar</i>	u8	0 – Not Applicable 1 – Ramp Load 2 – Track Target 3 – Ramp Unload 4 – Ramp Unload Done 255 – Unknown	0xFF
<i>gen_cb</i> (See note)	u8	0 – Open 1 – Closed 2 – Unavailable 3 – Inhibit 255 – Unknown	0xFF
<i>util_cb</i> (See note)	u8	0 – Open 1 – Closed 2 – Unavailable 3 – Inhibit 255 – Unknown	0xFF

NOTE: The GLC must reconcile the value of the 2 logicals to determine the field value as follows:

CB Inhibit Sw	CB Position Status	.gen_cb/util_cb
Inactive (0)	0..2	<i>CB Position Status (0..2)</i>
Active (1)	X	<i>Inhibit (3)</i>

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenStatus	UNVT_gen_status (30 bytes)	GCM	This output used by the Master Control, PCC 3200, and PC ATS NCM (PowerCommand Transfer Switch) is used to provide the current operating status of this genset for other gensets or PowerCommand transfer switches. See Table F-4r below.

Table F-4r. GCM Variable *nvoGenStatus*

Field	Type	Notes
<i>name_tag</i>	char[16]	ascii string
<i>device_type</i>	u16	5 – PCC
<i>control_switch</i>	u8	0 – Off 1 – Run/Manual 2 – Auto 255 – Unknown
<i>state</i>	u8	0 – Stopped 1 – Start Pending 2 – Warmup /Idle 3 – Running 4 – Cooldown /Rated 5 – Cooldown /Idle 255 – Unknown
<i>fault_code</i>	u16	Varies by device.
<i>fault_type</i>	u8	1 – Warning 2 – Derate 3 – Shutdown w/cooldown 4 – Shutdown 255 – Unknown
<i>percent_kw</i>	u8 (SNVT_lev_cont)	Clamp at 125%.
<i>total_kw</i>	s16	
<i>nfp110</i>	u16 (SNVT_state)	
<i>extended</i>	u16 (SNVT_state)	

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenStatus (Continued)	UNVT_gen_status (30 bytes)	GLC	Output used to provide the current operating status of this genset for other PCC 3200 gensets or PowerCommand transfer switches. See Table F-4s below.

Table F-4s. GLC Variable *nvoGenStatus*

Field	Type	Notes
<i>name_tag</i>	char[16]	ascii string
<i>device_type</i>	u16	3 – PCC 3200
<i>control_switch</i>	u8	0 – Off 1 – Run\Manual 2 – Auto 255 – Unknown
<i>state</i>	u8	0 – Stopped 1 – Start Pending 2 – Warmup /Idle 3 – Running 4 – Cooldown /Rated 5 – Cooldown /Idle 255 – Unknown
<i>fault_code</i>	u16	Varies by device.
<i>fault_type</i>	u8	1 – Warning 2 – Derate 3 – Shutdown w/cooldown 4 – Shutdown 255 – Unknown
<i>percent_kw</i>	u8 (SNVT_lev_cont)	Clamp, see <i>nvoRunStatus</i>
<i>total_kw</i>	s16	
<i>nfpa110</i>	u16 (SNVT_state)	See <i>nvoAnnunNFPA110</i>
<i>extended</i>	u16 (SNVT_state)	See <i>nvoAnnunExtended</i>

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenStatus (Continued)	UNVT_gen_status (30 bytes)	PCC 2100 NCM	Output used to provide the current operating status of this genset for other PCC 2100 gensets or PowerCommand transfer switches. This output may be connected to many PCC 2100 gensets or PowerCommand transfer switches. See Table F-4t below.

Table F-4t. PCC 2100 NCM Variable *nvoGenStatus*

Field	Type	Notes
<i>name_tag</i>	char[16]	ascii string
<i>device_type</i>	u16	11 – PCC 2100
<i>control_switch</i>	u8	0 – Off 1 – Run\Manual 2 – Auto 255 – Unknown
<i>state</i>	u8	0 – Stopped 1 – Start Pending 2 – Warmup /Idle 3 – Running 4 – Cooldown /Rated 5 – Cooldown /Idle 255 – Unknown
<i>fault_code</i>	u16	Varies by device.
<i>fault_type</i>	u8	0 – No Fault 1 – Warning 2 – Derate 3 – Shutdown w/cooldown 4 – Shutdown 255 – Unknown
<i>percent_kw</i>	u8 (SNVT_lev_cont)	Clamp, see <i>nvoRunStatus</i>
<i>total_kw</i>	s16	
<i>nfpa110</i>	u16 (SNVT_state)	See <i>nvoAnnunNFPA110</i>
<i>extended</i>	u16 (SNVT_state)	See <i>nvoAnnunExtended</i>

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoGenStatus (Continued)	UNVT_gen_stat_05 (30 bytes)	CCM-G	Output used by the Master Control, ModLon, and PowerCommand ATS to provide the overall operating status of the genset. The <i>fault_code</i> and <i>fault_type</i> fields will contain the most severe active fault. See Table F-4u below.

Table F-4u. CCM-G Variable *nvoGenStatus*

Field	Type	Data Source	Notes	Default
<i>name_tag</i>	char[16]	<i>nviNodeInfo.namg_tag[16]</i>	ascii string	0
<i>device_type</i>	u16	NA	6 – Genset w/CCM	6
<i>control_switch</i>	u8	Discrete Input 29,30 29 → Switch In Off 30 → Switch In Run	0,0 → 2 (Auto) 0,1 → 1 (Run/Manual) 1,0 → 0 (Off) 1,1 → 3 (Unknown)	0
<i>state</i>	u8	Discrete Input 28	0 → 0 (Stopped) 1 → 3 (Running)	0
<i>fault_code</i>	u16	Discrete Input #	0 → None 1..32 → Input 1–32	0
<i>fault_type</i>	u8	<i>nvoEventMsgCnfig</i>	0 – None 1 – Warning 4 – Shutdown	0
<i>percent_kw</i>	u8 (SNVT_lev_cont)		Not Supported	0xFF
<i>total_kw</i>	s16	<i>nvoGenACData.total_kw</i>		0x7FFF
<i>nfpa110</i>	u16 (UNVT_st_nfpa110)	nvoAnnunNFPA110		0
<i>extended</i>	u16 (UNVT_st_gen_ext)	Discrete Input 17	Only <i>bit0</i> is supported	0

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvolInfo	UNVT_gcm_info (18 bytes)	GCM, GLC, PCC 2100 NCM	Output used to acquire genset model information. This output is configured as 'polled' only. The GCM/GLC/NCM polls for this data once at reset. For a GCM, see Table F-4v. For a GLC or a PCC 2100 NCM, see Table F-4w.

Table F-4v. GCM Variable *nvolInfo*

Field	Type	Notes	Default
<i>model</i>	SNVT_char_ascii[4]	Read ONCE at reset.	0
<i>rated_kw</i>	u16 (SNVT_power_kilo)	Read ONCE at reset.	0
<i>rated_voltage</i>	u16 (VLL)	Read ONCE at reset.	0
<i>sw_version</i>	char[4]	Read ONCE at reset.	0
<i>sw_date</i>	char[6]	Read ONCE at reset.	0

Table F-4w. GLC and PCC 2100 NCM Variable *nvolInfo*

Field	Type	Notes	Default
<i>model</i>	SNVT_char_ascii[4]	Not Supported	0
<i>rating</i>	u16 (SNVT_power_kilo)	Not Supported	0
<i>selected_voltage</i>	u16 (VLL)	Not Supported	0
<i>fw_version</i>	char[4]	ASCII	0
<i>fw_date</i>	char[6]	Not Supported	0

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																																
nvoIOStatus	UNVT_dim_io_stat (24 bytes)	DIM	Output sent to the annunciator and is used to provide discrete input status. <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Notes</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td><i>relay[0]</i></td> <td>u8</td> <td>State of Relay 1</td> <td>0</td> </tr> <tr> <td>...</td> <td></td> <td></td> <td></td> </tr> <tr> <td><i>relay[15]</i></td> <td>u8</td> <td>State of Relay 16</td> <td>0</td> </tr> <tr> <td><i>input1</i></td> <td>u8</td> <td>State of Input 1</td> <td>0</td> </tr> <tr> <td><i>input2</i></td> <td>u8</td> <td>State of Input 2</td> <td>0</td> </tr> <tr> <td><i>input3</i></td> <td>u8</td> <td>State of Input 3</td> <td>0</td> </tr> <tr> <td><i>input4</i></td> <td>u8</td> <td>State of Input 4</td> <td>0</td> </tr> <tr> <td><i>Input5</i></td> <td>u8</td> <td>State of Input 5</td> <td>0</td> </tr> <tr> <td><i>Input6</i></td> <td>u8</td> <td>State of Input 6</td> <td>0</td> </tr> <tr> <td><i>Input7</i></td> <td>u8</td> <td>State of Input 7</td> <td>0</td> </tr> <tr> <td><i>Input8</i></td> <td>u8</td> <td>State of Input 8</td> <td>0</td> </tr> </tbody> </table>	Field	Type	Notes	Default	<i>relay[0]</i>	u8	State of Relay 1	0	...				<i>relay[15]</i>	u8	State of Relay 16	0	<i>input1</i>	u8	State of Input 1	0	<i>input2</i>	u8	State of Input 2	0	<i>input3</i>	u8	State of Input 3	0	<i>input4</i>	u8	State of Input 4	0	<i>Input5</i>	u8	State of Input 5	0	<i>Input6</i>	u8	State of Input 6	0	<i>Input7</i>	u8	State of Input 7	0	<i>Input8</i>	u8	State of Input 8	0
Field	Type	Notes	Default																																																
<i>relay[0]</i>	u8	State of Relay 1	0																																																
...																																																			
<i>relay[15]</i>	u8	State of Relay 16	0																																																
<i>input1</i>	u8	State of Input 1	0																																																
<i>input2</i>	u8	State of Input 2	0																																																
<i>input3</i>	u8	State of Input 3	0																																																
<i>input4</i>	u8	State of Input 4	0																																																
<i>Input5</i>	u8	State of Input 5	0																																																
<i>Input6</i>	u8	State of Input 6	0																																																
<i>Input7</i>	u8	State of Input 7	0																																																
<i>Input8</i>	u8	State of Input 8	0																																																
nvoLoadControl	SNVT_switch (2 bytes)	PC ATS NCM	Output used by the ATS and DIM provided to allow the PowerCommand transfer switch to sequence the loading of either source with a single binding. This allows the transfer switch to 'gently' apply load to a source, avoiding full step loading. This output serves the same purpose as <i>nvoLoadSequence1..8</i> , but does so with a single output where the individual bits are used to sequence the load. State = 0 (Enable Load) or 1 (Disable Load)																																																
nvoLoadDumpCmd	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100	Output used by the Master Control to reduce the load on the genset. When the <i>state</i> field is true, the genset requests that its load be reduced. When the <i>state</i> field is false, the current load for the genset is acceptable. State = 0 (Load OK) or 1 (Remove Load)																																																
nvoLoadSequence1...8	SNVT_switch (2 bytes)	PC ATS NCM	These outputs used by PowerCommand ATS, CCM-T, or DIM (relay module) are used to allow the PowerCommand transfer switch to sequence the loading of either source. This allows the transfer switch to 'gently' apply load to a source, avoiding full step loading. When the <i>state</i> field is true, the transfer switch is inhibiting the device from loading. When the <i>state</i> field is false, the device may be loaded. The <i>value</i> field is not used. The <i>state</i> field of the network variable will be determined from <i>fault_status</i> of the event announcement. State = 0 (Enable Load) or 1 (Disable Load)																																																
nvoMfgTest	UNVT_mfgtest_05	All	Output used for development and manufacturing testing.																																																
nvoNFPA110	SNVT_state (2 bytes)	GCM, GLC, PCC 2100 NCM, PC ATS NCM, CCM-G, CCM-T	Output only used to provide NFPA-110 alarms to a relay expansion card (for example, DIM) when the device is self-installed. The relay expansion card creates the binding from <i>nvoNFPA110</i> .																																																

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoNodeStatus	UNVT_dim_status (20 bytes)	DIM	Output used to provide discrete operating data of the genset. See Table F-4x below.
	UNVT_key_status (12 bytes)	PC ATS NCM	Output used to provide discrete operating data of the transfer switch. See Table F-4y below.
	UNVT_ccm_status1 (12 bytes)	CCM-G, CCM-T	Output used to provide discrete operating data of the genset. For a CCM-G, see Table F-4z below. For a CCM-T, see Table F-4aa below.

Table F-4x. DIM Variable *nvoNodeStatus*

Field	Type	Notes	Default
<i>relay[0]</i>	u8	State of Relay 1	0
...			
<i>relay[15]</i>	u8	State of Relay 16	0
<i>input1</i>	u8	State of Input 1	0
<i>input2</i>	u8	State of Input 2	0
<i>input3</i>	u8	State of Input 3	0
<i>input4</i>	u8	State of Input 4	0

Table F-4y. PC ATS NCM Variable *nvoNodeStatus*

Field	Type	Bit	Event (Network Variable)	Default
<i>inputs[0]</i>	u8 (bit-field) inputs 1–8	0 (LSB) 1 2 3 4 5..7	Source1 Available Source2 Available Source1 Connected Source2 Connected Test/Exercise In Progress Not Used	0
<i>inputs[1]</i>	u8 (bit-field) inputs 9–16	0 (LSB) 1 2 3 4..7	Transfer Pending Charger AC Failure1 Bypass To Source1 Bypass To Source2 Not Used	0
<i>inputs[2]</i>	u8 (bit-field) inputs 17–24	0 (LSB) 1 2..7	Start Command A (Source 2) Start Command B (Source 1) Not Used	0
<i>inputs[3]</i>	u8 (bit-field) inputs 25–32	0 (LSB) 1 2 3 4 ¹ 5 ¹ 6 ¹ 7	ATS Common Alarm ¹ Load Shed Transfer Inhibit Retransfer Inhibit Fail To Close – Transfer Fail To Close – Retransfer Low Battery – Controller Low Battery – NCM Network Error ¹	0
<i>relay1</i>	SNVT_switch	NA	(= <i>nviRelayControl1</i>)	Note 2
<i>relay2</i>	SNVT_switch	NA	(= <i>nviRelayControl2</i>)	Note 2
<i>relay3</i>	SNVT_switch	NA	(= <i>nviRelayControl3</i>)	Note 2
<i>relay4</i>	SNVT_switch	NA	0 (momentary)	0
1. These fields are latched and cleared on Fault Reset event. 2. The default value of these fields are initialized by reading the corresponding logical address.				

Table F-4z. CCM-G Variable *nvoNodeStatus*

Field	Type	Notes	Default
<i>inputs[0]</i>	u8 (bit-field)	Custom Status (Inputs 1..8)	0
<i>inputs[1]</i>	u8 (bit-field)	Custom Status (Inputs 9..16)	0
<i>inputs[2]</i>	u8 (bit-field)	Genset Status (Inputs 17..24)	0
<i>inputs[3]</i>	u8 (bit-field)	Genset Status (Inputs 25..32)	0
<i>relay1</i>	u8 (boolean)	Start/Stop (Relay1)	0
<i>relay2</i>	u8 (boolean)	Fault Reset (Relay2)	0
<i>relay3</i>	u8 (boolean)	Shutdown (Relay3)	0
<i>relay4</i>	u8 (boolean)	Spare (Relay4)	0
<i>relay5</i>	u8 (boolean)	Spare (Relay5)	0
<i>relay6</i>	u8 (boolean)	Spare (Relay6)	0
<i>relay7</i>	u8 (boolean)	Spare (Relay7)	0
<i>relay8</i>	u8 (boolean)	Spare (Relay8)	0

Table F-4aa. CCM-T Variable *nvoNodeStatus*

Field	Type	Notes	Default
<i>inputs[0]</i>	u8 (bit-field)	ATS Status (Inputs 1..8)	0
<i>inputs[1]</i>	u8 (bit-field)	ATS Status (Inputs 9..16)	0
<i>inputs[2]</i>	u8 (bit-field)	Custom Status (Inputs 17..24)	0
<i>inputs[3]</i>	u8 (bit-field)	Custom Status (Inputs 25..32)	0
<i>relay1</i>	u8 (boolean)	Load Shed (Relay1)	0
<i>relay2</i>	u8 (boolean)	Transfer Inhibit (Relay2)	0
<i>relay3</i>	u8 (boolean)	Remote Test (Relay3)	0
<i>relay4</i>	u8 (boolean)	Spare (Relay4)	0
<i>relay5</i>	u8 (boolean)	Spare (Relay5)	0
<i>relay6</i>	u8 (boolean)	Spare (Relay6)	0
<i>relay7</i>	u8 (boolean)	Spare (Relay7)	0
<i>relay8</i>	u8 (boolean)	Spare (Relay8)	0

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoNotInAuto	SNVT_switch (2 bytes)	GCM, GLC, PCC 2100 NCM, CCM-G	Output used to provide the status of the genset's front panel switch. When the <i>state</i> field is true, the genset's front panel switch is not in the "Auto" position. When the <i>state</i> field is false, the genset's front panel switch is in the "Auto" position. Unlike faults, this output is set when the event is active and cleared when the event becomes inactive. State = 0 (In Auto) or 1 (Not In Auto)
		PC ATS NCM, CCM-T	Output used by the annunciator to report the readiness of the transfer switch. When the <i>state</i> field is true, the transfer switch's control switch is not in the 'Auto' position. When the <i>state</i> field is false, the transfer switch panel switch is in the 'Auto' position. The <i>value</i> field is not used. State = 0 (In Auto) or 1 (Not In Auto)
nvoRelayCustom	SNVT_state (2 bytes)	PCC 2100 NCM	Output used to drive a customer-defined set of genset faults to the DIM. The bits may be "latched" (clear on fault reset) or "unlatched" (follow status of event). The NCM supports unlatched events <i>Not In Auto</i> (1463), <i>Load Demand</i> (1341) and <i>Ready To Load</i> (1465). All other fault codes are considered latched. This output must be set up using the service tool.
nvoRunStatus	SNVT_switch	GCM, GLC, PCC 2100 NCM	Output used by the annunciator to provide the genset's running status and percent load. When the <i>state</i> field is true, the genset is running and ready to accept load. When the <i>state</i> field is false, the genset is not ready to accept load. The <i>value</i> field is used to provide the percent of rated load on the genset. The device regularly transmits this output to provide the run status and loading of the genset. This output is required for LONMARK Generator Set compliance. State = 0 (Stopped) or 1 (Running – Ready to Load) Value (GCM) = 0–251 (255 = Unknown)
		CCM-G	Output used by the annunciator to provide the genset's running status. When the <i>state</i> field is true, the genset is running and ready to accept load. When the <i>state</i> field is false, the genset is not ready to accept load. The <i>value</i> field is not used. This output is required for LONMARK Generator Set compliance. State = 0 (Stopped) or 1 (Running – Ready to Load) Value = 0xFF (Unknown)

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION																																								
nvoSensorData	UNVT_ccm_sensor1 (14 bytes)	CCM-T	<p>Output used to provide analog data (battery voltage). This output is configured as 'polled' only.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Analog Input</th> <th>Notes</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td><i>spare1</i></td> <td>SNVT_lev_percent</td> <td>9</td> <td></td> <td>0</td> </tr> <tr> <td><i>spare2</i></td> <td>SNVT_lev_percent</td> <td>10</td> <td></td> <td>0</td> </tr> <tr> <td><i>spare3</i></td> <td>SNVT_lev_percent</td> <td>11</td> <td></td> <td>0</td> </tr> <tr> <td><i>spare4</i></td> <td>SNVT_lev_percent</td> <td>12</td> <td></td> <td>0</td> </tr> <tr> <td><i>spare5</i></td> <td>SNVT_lev_percent</td> <td>13</td> <td></td> <td>0</td> </tr> <tr> <td><i>spare6</i></td> <td>SNVT_lev_percent</td> <td>14</td> <td></td> <td>0</td> </tr> <tr> <td><i>battery_volts</i></td> <td>SNVT_volt</td> <td>15</td> <td></td> <td>0</td> </tr> </tbody> </table>	Field	Type	Analog Input	Notes	Default	<i>spare1</i>	SNVT_lev_percent	9		0	<i>spare2</i>	SNVT_lev_percent	10		0	<i>spare3</i>	SNVT_lev_percent	11		0	<i>spare4</i>	SNVT_lev_percent	12		0	<i>spare5</i>	SNVT_lev_percent	13		0	<i>spare6</i>	SNVT_lev_percent	14		0	<i>battery_volts</i>	SNVT_volt	15		0
Field	Type	Analog Input	Notes	Default																																							
<i>spare1</i>	SNVT_lev_percent	9		0																																							
<i>spare2</i>	SNVT_lev_percent	10		0																																							
<i>spare3</i>	SNVT_lev_percent	11		0																																							
<i>spare4</i>	SNVT_lev_percent	12		0																																							
<i>spare5</i>	SNVT_lev_percent	13		0																																							
<i>spare6</i>	SNVT_lev_percent	14		0																																							
<i>battery_volts</i>	SNVT_volt	15		0																																							
nvoSpareAnalog	UNVT_spareAnalog (6 bytes)	CCM-G, CCM-T	<p>Output used to provide spare analog input data. This output is configured as 'polled' only.</p> <table border="1"> <thead> <tr> <th>Field</th> <th>Type</th> <th>Default</th> </tr> </thead> <tbody> <tr> <td><i>spare_1</i></td> <td>s16 (SNVT_lev_percent)</td> <td>0</td> </tr> <tr> <td><i>spare_2</i></td> <td>s16 (SNVT_lev_percent)</td> <td>0</td> </tr> <tr> <td><i>spare_3</i></td> <td>s16 (SNVT_lev_percent)</td> <td>0</td> </tr> </tbody> </table>	Field	Type	Default	<i>spare_1</i>	s16 (SNVT_lev_percent)	0	<i>spare_2</i>	s16 (SNVT_lev_percent)	0	<i>spare_3</i>	s16 (SNVT_lev_percent)	0																												
Field	Type	Default																																									
<i>spare_1</i>	s16 (SNVT_lev_percent)	0																																									
<i>spare_2</i>	s16 (SNVT_lev_percent)	0																																									
<i>spare_3</i>	s16 (SNVT_lev_percent)	0																																									
nvoSpeedAdjCmd	SNVT_switch (2 bytes)	PC ATS NCM	<p>Output is used to instruct a non-paralleling PCC 3200 or PCC 2100 genset (Source 2) to increase its nominal frequency set point by 0.5 Hz. This will allow the PowerCommand ATS to perform a 'passive' closed transition back to normal power. The frequency differential forces the two sources to match phase, allowing the transfer switch to perform a closed transition back to Source 1 (normal power).</p> <p>When the <i>state</i> field is true, the transfer switch is requesting the genset increase its nominal frequency by 0.5 Hz. When the <i>state</i> field is false, the genset should restore its nominal rated frequency. The <i>value</i> field is not used. The <i>state</i> field of the network variable is determined from <i>fault_status</i> of the event announcement.</p> <p>State = 0 (Nominal Speed) or 1 (Increase Speed)</p>																																								
nvoSrc1Available	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	<p>Output is used by the annunciator to report that Source 1 is available for loading. When the <i>state</i> field is true, Source 1 is within rated voltage and frequency. When the <i>state</i> field is false, Source 1 is not within rated voltage and frequency. The <i>value</i> field is not used. The <i>state</i> field of the network variable will be determined from <i>fault_status</i> of the event announcement. This output is required for LONMARK compliance.</p> <p>State = 0 (Source 1 Not Available) or 1 (Source 1 Available)</p>																																								

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoSrc1Connected	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output is used by PCC 3200 genset and the annunciator to report that Source 1 is connected to the load. When the <i>state</i> field is true, Source 1 is connected to the load. When the <i>state</i> field is false, Source1 is not connected to the load. State = 0 (Source 1 Not Connected) or 1 (Source 1 Connected)
nvoSrc2Available	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output is used by the annunciator to report that Source 2 is available for loading. When the <i>state</i> field is true, Source 2 is within rated voltage and frequency. When the <i>state</i> field is false, Source 2 is not within rated voltage and frequency. The <i>value</i> field is not used. The <i>state</i> field of the network variable will be determined from <i>fault_status</i> of the event announcement. This output is required for LONMARK compliance. State = 0 (Source 2 Not Available) or 1 (Source 2 Available)
nvoSrc2Connected	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output is used by the annunciator to report that Source 2 is connected to the load. When the <i>state</i> field is true, Source 2 is connected to the load. When the <i>state</i> field is false, Source 1 is not connected to the load. The <i>value</i> field is not used. This output is required for LONMARK compliance. State = 0 (Source 2 Not Connected) or 1 (Source 2 Connected)
nvoStartCmd	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output is used start a genset (which is Source 2). When the <i>state</i> field is true, the transfer switch is requesting the genset to start. When the <i>state</i> field is false, the transfer switch is requesting the genset to stop. The <i>value</i> field is not used. This output is required for LONMARK compliance. State = 0 (Stop) or 1 (Start)
nvoStartCmdB	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output is used to start a genset (which is Source 1). This output is only for when an ATS is used in a genset-to-genset application. When the <i>state</i> field is true, the transfer switch is requesting the genset to start. When the <i>state</i> field is false, the transfer switch is requesting the genset to stop. The <i>value</i> field is not used. This output is optional for LONMARK compliance. State = 0 (Stop) or 1 (Start)
nvoStartType	SNVT_switch (2 bytes)	PC ATS NCM	Output used with a PCC 3200 genset. This output is used to configure the PCC 3200 genset for emergency or non-emergency start. It will not start or stop the genset. This output only configures the start mode. When the <i>state</i> field is true, the PCC 3200 genset will be configured for a non-emergency or test start. When the <i>state</i> field is false, the PCC 3200 genset will be configured for an emergency or fast start. The <i>value</i> field is not used. State = 0 (Emergency) or 1 (Non-Emergency)

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoStartTypeB	SNVT_switch (2 bytes)	PC ATS NCM	Output used with a PCC 3200 genset. This output is only for when an ATS is used in a genset-to-genset application. This output is used to configure the PCC 3200 genset for emergency or non-emergency start. It will not start or stop the genset. It must be used in conjunction with <i>nvoStartCmdB</i> . This output only configures the start mode. When the <i>state</i> field is true, the PCC 3200 genset will be configured for a non-emergency or test start. When the <i>state</i> field is false, the PCC 3200 genset will be configured for an emergency of fast start. The <i>value</i> field is not used. State = 0 (Emergency) or 1 (Non-Emergency)
nvoStatus	UNVT_gcm_status	GCM, GLC, PCC 2100 NCM	Output used to provide the operating status of the genset. The <i>fault_type</i> , <i>fault_text</i> , and <i>fault_code</i> fields are event driven. This output is configured as 'polled' only. For a GCM, see Tables F-4ab and F-4ac below. For a GLC or an NCM, see Table F-4ad below.

Table F-4ab. GCM Variable *nvoStatus*

Field	Type	Notes	Default
<i>state</i> ¹	u16 (enum)	0 – Power Up 1 – Stopped 2 – Cranking 3 – Running 4 – Shutdown (Run cmd) 5 – Shutdown (No Run cmd)	0
<i>status</i> ²	u16 (bit-field)		0
<i>fault_type</i> ³	u16 (enum)	1 – Warning 2 – Shutdown	0
<i>fault_text</i> [16] ⁴	char		0
<i>fault_code</i>	u16	0 – No Fault 1 .. 65535 – Fault Code	0
<i>error</i>	u8 (boolean)	Not Supported	0

Table F-4ac. Status Field for GCM *nvoStatus*

Bit(s)	Description	Notes
<i>bit0</i>	Common Alarm	Least Significant Bit
<i>bit1</i>	Load Dump	
<i>bit2</i>	Genset CB Position	
<i>bit3</i>	Leading PF	Use when for Total PF
<i>bit4</i>	Ready To Load	
<i>bit5</i>	Control Switch–Run	Neither–> Off
<i>bit6</i>	Control Switch–Auto	
<i>bit7</i>	Genset Start Delay	
<i>bit8</i>	Genset Stop Delay	
<i>bit9</i>	Load Demand	
<i>bit10</i>	Paralleling Installed	Paralleling Genset
<i>bit11</i>	Remote Start	Not Used
<i>bit12</i>	Right Coolant Installed	Not Used
<i>bit13</i>	Exhaust 1 Installed	Exhaust 1 is installed
<i>bit14</i>	Exhaust 2 Installed	Exhaust 2 is installed
<i>bit15</i>	Genset CB Inhibit	

Table F-4ad. GLC and PCC 2100 NCM Variable *nvoStatus*

Field	Type	Notes	Default
<i>state</i> ¹	u16	0 – Power Up 1 – Stopped 2 – Cranking 3 – Running 4 – Shutdown (Run cmd) 5 – Shutdown (No Run cmd)	0
<i>status</i> ² .bit3 .bit5 .bit6 others	u16 (bit-field)	Leading PF Switch in 'Run' (1) Switch in 'Auto' (2) Not Supported	0
<i>fault_type</i> ³	u16	1 – Warning 2 – Shutdown	0
<i>fault_text</i> [16] ⁴	char	(Faults only) See below	0
<i>fault_code</i>	u16	(Faults only) 0 – No Fault 1 .. 65535 – Fault Code	0
<i>error</i>	u8 (boolean)	Not Supported	0

Indicating Leading PF for PCW

Alt Total Power Factor	{bit3}
< 0 – Leading	1
≥ 0 – Lagging	0

Translating Control Switch Position

Control Switch Position	<i>nvoStatus.status</i>	
	{bit5}	{bit6}
0 – Off	0	0
1 – Manual / Run	1	0
2 – Auto	0	1

Use the following table to determine *nvoStatus.fault_type*.

Translating Fault Type

[Event] <i>fault_type</i>	<i>nvoStatus.fault_type</i>
0 – Event (None)	Do not update
1 – Warning	1 – Warning
2 – Derate	1 – Warning
3 – Shutdown w/cooldown	2 – Shutdown
4 – Shutdown	2 – Shutdown

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoSyncEnableCmd	SNVT_switch (2 bytes)	PC ATS NCM	Output used to instruct a paralleling PCC 3200 genset (Source 2) to synchronize to the bus (Source 1). Once the two sources are in phase, the PowerCommand ATS performs a closed transition back to Source 1 (normal). When the <i>state</i> field is true, the transfer switch is requesting the genset to start synchronizing to the bus. When the <i>state</i> field is false, the genset should no longer attempt to synchronize to the bus. The <i>value</i> field is not used. State = 0 (Disable Synchronizer) or 1 (Enable Synchronizer)
nvoSystemTestCmd	SNVT_switch (2 bytes)	GLC	Output used by the Master Control, PowerCommand ATS, and CCM-T to initiate a system or transfer switch test from the genset. When a user selects the system test command from the genset front panel or tool, the genset announces a system test event. When the <i>state</i> field is true, the genset is requesting a system test. When the <i>state</i> field is false, the genset is canceling the system test. The <i>value</i> field is used to test with or without load. State = 0 (End Test) or 1 (System Test)
nvoTestStatus	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used by the annunciator to provide the Power Transfer Control (PTC) module test status for the genset. When the <i>state</i> field is true, the genset's PTC module is testing. When the <i>state</i> field is false, the genset is not running a test. The <i>value</i> field is not used. State = 0 (No Test) or 1 (Test)
		PC ATS NCM, CCM-T	Output used by the annunciator to provide the test or exercise status of the genset. When the <i>state</i> field is true, the ATS is running a test or exercise. When the <i>state</i> field is false, no test or exercise is active. The <i>value</i> field is not used. State = 0 (No Test) or 1 (Test)
nvoTransPending	SNVT_switch (2 bytes)	PC ATS NCM, CCM-T	Output used to inform other devices on the network that a power source transfer is pending (to either source). This output is equivalent to the 'Elevator Signal'. When the <i>state</i> field is true, the transfer switch is preparing for a transfer. When the <i>state</i> field is false, the transfer switch has completed the transfer. The <i>value</i> field is not used. The <i>state</i> field of the network variable will be determined from <i>fault_status</i> of the event announcement. State = 0 (No Transfer Pending) or 1 (Transfer Pending)
nvoUtilACData	UNVT_ac_data (31 bytes)	PCC 2100 NCM	Output used by ModLon to provide the instantaneous ac data of the genset for the Master Control. See the table below.

PCC 2100 NCM Variable *nvoUtilACData*

Field	Type	Notes	Default
<i>freq</i>	u16 (SNVT_freq_hz)	AMF Only	0xFFFF
<i>total_pf</i>	s16 (SNVT_pwr_fact)	Not Supported	0x7FFF
<i>total_kva</i>	s16 (1 kVA)	Not Supported	0x7FFF
<i>total_kw</i>	s16 (1 kW)	Not Supported	0x7FFF
<i>total_kvar</i>	s16 (1 kVAR)	Not Supported	0x7FFF
<i>volts_ab</i>	u16 (SNVT_volt_ac)		0xFFFF
<i>volts_bc</i>	u16 (SNVT_volt_ac)		0xFFFF
<i>volts_ca</i>	u16 (SNVT_volt_ac)		0xFFFF
<i>volts_a</i>	u16 (SNVT_volt_ac)	Not Supported	0xFFFF
<i>volts_b</i>	u16 (SNVT_volt_ac)	Not Supported	0xFFFF
<i>volts_c</i>	u16 (SNVT_volt_ac)	Not Supported	0xFFFF
<i>amps_a</i>	u16 (SNVT_amp_ac)	Not Supported	0xFFFF
<i>amps_b</i>	u16 (SNVT_amp_ac)	Not Supported	0xFFFF
<i>amps_c</i>	u16 (SNVT_amp_ac)	Not Supported	0xFFFF
<i>percent_amps_a</i>	u8 (SNVT_lev_cont)	Not Supported	0xFF
<i>percent_amps_b</i>	u8 (SNVT_lev_cont)	Not Supported	0xFF
<i>percent_amps_c</i>	u8 (SNVT_lev_cont)	Not Supported	0xFF

TABLE F-4. NETWORK VARIABLE OUTPUTS (CONTINUED)

VARIABLE	OPERATING TYPE	DEVICE SENT BY	DESCRIPTION
nvoUtilAvailable	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used to report that utility is available for loading (within rated voltage and frequency). When the <i>state</i> field is true (1), utility power is available. When the <i>state</i> field is false (0), utility power is not available. The <i>value</i> field is not used. State = 0 (Utility Not Available) or 1 (Utility Available)
nvoUtilConnected	SNVT_switch (2 bytes)	PCC 2100 NCM	Output used to report that the utility is connected to the load (Utility contact is closed). When the <i>state</i> field is true (1), the utility is connected to the load. When the <i>state</i> field is false (0), the utility is not connected to the load. The <i>value</i> field is not used. State = 0 (Utility Not Connected) or 1 (Utility Connected)

TABLE F-5. PCC FAULTS AND CORRESPONDING GCM OUTPUTS

Fault Description	Event Code	Set Variable(s)
Customer Fault 1	260	<i>nvoGenParaData.customer_faults.bit0</i>
Customer Fault 3	262	<i>nvoGenParaData.customer_faults.bit2</i>
Customer Fault 4	263	<i>nvoGenParaData.customer_faults.bit3</i>
Emergency Stop	102	<i>nvoAnnunExtended.bit15</i>
Fail To Close	226	<i>nvoAnnunExtended.bit11</i>
Fail To Start (Overcrank)	222	<i>nvoRemoteAnnun1 {bit11}</i> <i>nvoAnnunNFPA110.bit7</i>
Fail To Sync	224	<i>nvoAnnunExtended.bit10</i>
Ground Fault (Customer Fault 2)	261	<i>nvoGenParaData.customer_faults.bit1</i> <i>nvoAnnunExtended.bit1</i>
High AC Voltage	301	<i>nvoAnnunExtended.bit2</i>
High Battery Voltage	231	<i>nvoAnnunNFPA110.bit4</i> <i>nvoRemoteAnnun1 {bit0}</i>
High Coolant Temp Shutdown	212	<i>nvoRemoteAnnun1 {bit8}</i> <i>nvoAnnunNFPA110.bit10</i> <i>nvoAnnun8Point.bit4</i>
High Coolant Temp Warning	211	<i>nvoRemoteAnnun1 {bit7}</i> <i>nvoAnnunNFPA110.bit9</i> <i>nvoAnnun8Point.bit4</i>
Loss of Field (Reverse kVAR)	337	<i>nvoAnnunExtended.bit9</i>
Low AC Voltage	303	<i>nvoExtended.bit3</i>
Low Battery Voltage	230	<i>nvoRemoteAnnun1 {bit1}</i>
Weak Battery	232	<i>nvoAnnunNFPA110.bit5</i>
Low Coolant Level Shutdown	215	<i>nvoRemoteAnnun1 {bit15}</i>
Low Coolant Level Warning	214	<i>nvoAnnunNFPA110.bit14</i> <i>nvoAnnun8Point.bit6</i>
Low Coolant Temp	210	<i>nvoRemoteAnnun1 {bit9}</i> <i>nvoAnnunNFPA110.bit8</i> <i>nvoAnnun8Point.bit4</i>
Low Fuel – Day	240	<i>nvoRemoteAnnun1 {bit14}</i>
Low Fuel – Main	241	<i>nvoAnnunNFPA110.bit15</i> <i>nvoAnnun8Point.bit7</i>

TABLE F-5. PCC FAULTS AND CORRESPONDING GCM OUTPUTS (CONTINUED)

Fault Description	Event Code	Set Variable(s)
Low Oil Pressure Shutdown	201	<i>nvoRemoteAnnun1 {bit6}</i> <i>nvoAnnunNFPA110.bit12</i> <i>nvoAnnun8Point.bit5</i>
Low Oil Pressure Warning	200	<i>nvoRemoteAnnun1 {bit5}</i> <i>nvoAnnunNFPA110.bit11</i> <i>nvoAnnun8Point.bit5</i>
Overcurrent Shutdown	321	<i>nvoAnnunExtended.bit6</i>
Overcurrent Warning	320	
Overload	330	<i>nvoAnnunExtended.bit5</i>
Overspeed	223	<i>nvoRemoteAnnun1 {bit10}</i>
Mag Pickup	220	<i>nvoAnnunNFPA110.bit13</i>
Reverse kW	335	<i>nvoAnnunExtended.bit8</i>
Short Circuit	322	<i>nvoAnnunExtended.bit7</i>
Under Frequency	313	<i>nvoAnnunExtended.bit4</i>

TABLE F-6. GLC REQUIRED CONTROLLER EVENTS

Event Name	Event Code	For
Unlatched Events		
Common Warning or Shutdown Alarm	1483	[Check Genset] nvoFaultStatus.state nvoAnnunExtended.bit0 nvoAnnun8Point.bit0 nvoAnnun4Point.bit0
Load Demand Stop	1341	nvoAnnunExtended.bit12
Load Dump Command	1464	nvoLoadDumpCmd.state
Not In Auto	1463	nvoNotInAuto.state nvoAnnunNFPA110.bit3 nvoRemoteAnnun1 {bit12} nvoAnnun8Point.bit3 nvoAnnun4Point.bit3
Ready To Load	1465	nvoRunStatus.state nvoAnnunNFPA110.bit2 nvoRemoteAnnun1 {bit2} nvoAnnun8Point.bit2 nvoAnnun4Point.bit2
System Test	TBD	nvoSystemTestCmd.state
Latched Events		
Charger AC Failure	<config>	nvoAnnunNFPA110.bit6 nvoRemoteAnnun1 {bit13}
Controller Not Responding	1476	(Controller Integrity)
Customer Fault 1	1311	nvoGenParaData.customer_faults.bit0
Customer Fault 2	1312	nvoGenParaData.customer_faults.bit1
Customer Fault 3	1317	nvoGenParaData.customer_faults.bit2
Customer Fault 4	1318	nvoGenParaData.customer_faults.bit3
Emergency Stop – Local	1433	nvoAnnunExtended.bit15
Emergency Stop – Remote	1434	
Fail To Close (Gen CB)	1452	nvoAnnunExtended.bit11

TABLE F-6. GLC REQUIRED CONTROLLER EVENTS (CONTINUED)

Event Name	Event Code	For
Fail To Start (Overcrank)	359	<i>[Fail To Start]</i>
Fail To Crank	1438	<i>nvoAnnunNFPA110.bit7</i> <i>nvoRemoteAnnun1 {bit 11}</i>
Fail To Synchronize	1457	<i>nvoAnnunExtended.bit10</i>
Genset CB Tripped	1328	<i>nvoAnnunExtended.bit13</i>
Ground Fault	1462	<i>nvoAnnunExtended.bit1</i>
High AC Voltage	1446	<i>nvoAnnunExtended.bit2</i>
High Battery Voltage	442	<i>nvoAnnunNFPA110.bit4</i> <i>nvoRemoteAnnun1 {bit0}</i>
High Coolant Temperature Shutdown	151	<i>[High Engine Temperature]</i>
High Intake Manifold Temperature Shutdown	155	<i>nvoAnnunNFPA110.bit10</i>
High Oil Temperature Shutdown	214	<i>nvoRemoteAnnun1 {bit8}</i> <i>nvoAnnun8Point.bit4</i>
High Coolant Temperature Warning	146	<i>[Pre-High Engine Temperature]</i>
High Intake Manifold Temperature Warning	488	<i>nvoAnnunNFPA110.bit9</i>
High Oil Temperature Warning	421	<i>nvoRemoteAnnun1 {bit7}</i> <i>nvoAnnun8Point.bit4</i>
Low AC Voltage	1447	<i>nvoAnnunExtended.bit3</i>
Low Battery Voltage	441	<i>[Low Battery Voltage]</i>
Weak Battery	1442	<i>nvoAnnunNFPA110.bit5</i>
Dead Battery	1443	<i>nvoRemoteAnnun1 {bit1}</i>
Low Coolant Level Warning	197	<i>[Low Coolant Level]</i>
Low Coolant Level Shutdown	235	<i>nvoAnnunNFPA110.bit14</i>
Low Coolant Pressure Warning	233	<i>nvoRemoteAnnun1 {bit15}</i>
Low Coolant Pressure Shutdown	228	<i>nvoAnnun8Point.bit6</i>
Low Coolant Temperature	152	<i>[Low Coolant Temperature]</i>
Engine Cold	1435	<i>nvoAnnunNFPA110.bit8</i> <i>nvoRemoteAnnun1 {bit9}</i> <i>nvoAnnun8Point.bit4</i>
Low Fuel – Day Tank	1439	<i>nvoAnnunNFPA110.bit15</i>
Low Fuel – Main Tank	1441	<i>nvoRemoteAnnun1 {bit14}</i>
Low Fuel Pressure	482	<i>nvoAnnun8Point.bit7</i>

TABLE F-6. GLC REQUIRED CONTROLLER EVENTS (CONTINUED)

Event Name	Event Code	For
Low Oil Pressure Shutdown	415	[Low Oil Pressure] nvoAnnunNFP110.bit12 nvoRemoteAnnun1 {bit6} nvoAnnun8Point.bit5
Low Oil Pressure Warning	143	[Pre-Low Oil Pressure] nvoAnnunNFP110.bit11 nvoRemoteAnnun1 {bit5} nvoAnnun8Point.bit5
Network Battery Low	Phase 4	(Network Power Supply)
Network Error	1468	(Network Integrity)
Network Fault 1	1313	nvoGenParaData.network_faults.bit0
Network Fault 2	1314	nvoGenParaData.network_faults.bit1
Network Fault 3	1315	nvoGenParaData.network_faults.bit2
Network Fault 4	1316	nvoGenParaData.network_faults.bit3
Network Wink	1337	(Network Wink)
Overcurrent Warning	1471	nvoAnnunExtended.bit6
Overcurrent Shutdown	1472	
Overload	1444	nvoAnnunExtended.bit5
Overspeed	234	nvoAnnunNFP110.bit13
Overfrequency	1449	nvoRemoteAnnun1 {bit10}
Speed Sensor Failure	115	
Reverse kVAR	1461	nvoAnnunExtended.bit9
Reverse kW	1459	nvoAnnunExtended.bit8
Short Circuit	1445	nvoAnnunExtended.bit7
Underfrequency	1448	nvoAnnunExtended.bit4
Utility CB Tripped (See Configuration)	<config>	nvoAnnunExtended.bit14

TABLE F-7. PCC 2100 REQUIRED CONTROLLER EVENTS

Event Name	Event Code	For
AMF Test	TBD	<i>nvoATSStatus.extended.bit6</i> <i>nvoTestStatus.state</i>
Common Warning or Shutdown Alarm	1483	<i>nvoAnnunExtended.bit0</i> <i>nvoAnnun8Point.bit0</i> <i>nvoAnnun4Point.bit0</i> <i>nvoFaultStatus.state</i>
Customer Fault 1	1311	<i>nvoAnnunNFPA110.bit6 (Charger AC Failure)</i>
Customer Fault 2	1312	<i>nvoAnnunNFPA110.bit14 (Low Coolant Level)</i>
Customer Fault 3	1317	<i>nvoAnnunNFPA110.bit15 (Low Fuel Level)</i>
Customer Fault 4	1318	<i>nvoAnnunExtended.bit1 (Ground Fault)</i>
Network Fault 1	1313	<i>nvoAnnunExtended.bit13 (Gen CB Tripped)</i>
Network Fault 2	1314	<i>nvoAnnunExtended.bit14 (Utility CB Tripped)</i>
Network Fault 3	1315	
Network Fault 4	1316	
Network Fault 5	TBD	
Network Fault 6	TBD	
Network Fault 7	TBD	
Network Fault 8	TBD	
Emergency Stop – Local	1433	<i>nvoAnnunExtended.bit15</i>
Emergency Stop – remote	1434	
Fail To Close – Genset Contact	1452	<i>nvoATSStatus.extended.bit11</i>
Fail To Close – Utility Contact	TBD	
Fail To Open – Genset Contact	1453	<i>nvoATSStatus.extended.bit12</i>
Fail To Open – Utility Contact	TBD	
Fail To Start (Overcrank)	359	<i>nvoAnnunNFPA110.bit7</i>
Fail To Crank	1438	
Genset CB Inhibit	TBD	<i>nvoATSStatus.extended.bit9</i>
Genset Connected	TBD	<i>nvoAnnunNFPA110.bit1</i> <i>nvoAnnun8Point.bit1</i> <i>nvoAnnun4Point.bit1</i> <i>nvoGenConnected.state</i>
Ground Fault	1462	<i>nvoAnnunExtended.bit1</i>

TABLE F-7. PCC 2100 REQUIRED CONTROLLER EVENTS (CONTINUED)

Event Name	Event Code	For
High AC Voltage	1446	<i>nvoAnnunExtended.bit2</i>
High Battery Voltage	442	<i>nvoAnnunNFPA110.bit4}</i>
High Coolant Temperature Shutdown	151	<i>nvoAnnunNFPA110.bit10</i> <i>nvoAnnun8Point.bit4</i>
High Coolant Temperature Warning	146	<i>nvoAnnunNFPA110.bit9</i>
High Oil Temperature Warning	421	<i>nvoAnnun8Point.bit4</i>
Low AC Voltage	1447	<i>nvoAnnunExtended.bit3</i>
Low Battery Voltage	441	<i>nvoAnnunNFPA110.bit5</i>
Weak Battery	1442	
Dead Battery	1443	
Low Coolant Level	197 235	<i>nvoAnnunNFPA110.bit14</i> <i>nvoAnnun8Point.bit6</i>
Low Coolant Temperature	152	<i>nvoAnnunNFPA110.bit8</i> <i>nvoAnnun8Point.bit4</i>
Low Oil Pressure Shutdown	415	<i>nvoAnnunNFPA110.bit12</i> <i>nvoAnnun8Point.bit5</i>
Low Oil Pressure Warning	143	<i>nvoAnnunNFPA110.bit11</i> <i>nvoAnnun8Point.bit5</i>
Network Error	1468	<i>(Network Integrity)</i>
Network Wink	1337	<i>(Network Wink)</i>
Not In Auto	1463	<i>nvoNotInAuto.state</i> <i>nvoAnnunNFPA110.bit3</i> <i>nvoAnnun8Point.bit3</i> <i>nvoAnnun4Point.bit3</i>
Overcurrent Warning	1471	<i>nvoAnnunExtended.bit6</i>
Overcurrent Shutdown	1472	
Overload	1444	<i>nvoAnnunExtended.bit5</i>
Overload	1444	<i>nvoLoadDumpCmd.state</i>
Underfrequency	1448	<i>(must be config'd)</i>
Overfrequency Warning	1449	<i>nvoAnnunNFPA110.bit13</i>

TABLE F-7. PCC 2100 REQUIRED CONTROLLER EVENTS (CONTINUED)

Event Name	Event Code	For
Ready To Load (Genset Available)	1465	<i>nvoAnnunNFPA110.bit2</i> <i>nvoAnnun8Point.bit2</i> <i>nvoAnnun4Point.bit2</i> <i>nvoGenAvailable.state</i> <i>nvoRunStatus.state</i>
Reverse kVAR	1461	<i>nvoAnnunExtended.bit9</i>
Reverse kW	1459	<i>nvoAnnunExtended.bit8</i>
Short Circuit	1445	<i>nvoAnnunExtended.bit7</i>
Underfrequency	1448	<i>nvoAnnunExtended.bit4</i>
Utility Available	TBD	<i>nvoATSStatus.extended.bit0</i> <i>nvoUtilAvailable.state</i>
Utility CB Inhibit	TBD	<i>nvoATSStatus.extended.bit10</i>
Utility Connected	TBD	<i>nvoAnnunNFPA110.bit0</i> <i>nvoATSStatus.extended.bit2</i> <i>nvoUtilConnected.state</i>

TABLE F-8. CCM-G EVENTS AND CORRESPONDING NETWORK OUTPUTS

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
1	Custom Status 1	0xD010	0	J4.1	<i>nvoAnnunCustom.bit0</i> <i>nvoCustomStatus[1].state</i> <i>nvoNodeStatus.inputs[0] {bit 0}</i>
2	Custom Status 2		1	J4.2	<i>nvoAnnunCustom.bit1</i> <i>nvoCustomStatus[2].state</i> <i>nvoNodeStatus.inputs[0] {bit 1}</i>
3	Custom Status 3		2	J4.3	<i>nvoAnnunCustom.bit2</i> <i>nvoCustomStatus[3].state</i> <i>nvoNodeStatus.inputs[0] {bit 2}</i>
4	Custom Status 4		3	J4.4	<i>nvoAnnunCustom.bit3</i> <i>nvoCustomStatus[4].state</i> <i>nvoNodeStatus.inputs[0] {bit 3}</i>
5	Custom Status 5		4	J4.5	<i>nvoAnnunCustom.bit4</i> <i>nvoCustomStatus[5].state</i> <i>nvoNodeStatus.inputs[0] {bit 4}</i>
6	Custom Status 6		5	J4.6	<i>nvoAnnunCustom.bit5</i> <i>nvoCustomStatus[6].state</i> <i>nvoNodeStatus.inputs[0] {bit 5}</i>
7	Custom Status 7		6	J4.7	<i>nvoAnnunCustom.bit6</i> <i>nvoCustomStatus[7].state</i> <i>nvoNodeStatus.inputs[0] {bit 6}</i>
8	Custom Status 8		7	J4.8	<i>nvoAnnunCustom.bit7</i> <i>nvoCustomStatus[8].state</i> <i>nvoNodeStatus.inputs[0] {bit 7}</i>

TABLE F-8. CCM-G EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
9	Custom Status 9	0xD020	0	J4.9	<i>nvoAnnunCustom.bit8</i> <i>nvoCustomStatus[9].state</i> <i>nvoNodeStatus.inputs[1] {bit 0}</i>
10	Custom Status 10		1	J4.10	<i>nvoAnnunCustom.bit9</i> <i>nvoCustomStatus[10].state</i> <i>nvoNodeStatus.inputs[1] {bit 1}</i>
11	Custom Status 11		2	J4.11	<i>nvoAnnunCustom.bit10</i> <i>nvoCustomStatus[11].state</i> <i>nvoNodeStatus.inputs[1] {bit 2}</i>
12	Custom Status 12		3	J4.12	<i>nvoAnnunCustom.bit11</i> <i>nvoCustomStatus[12].state</i> <i>nvoNodeStatus.inputs[1] {bit 3}</i>
13	Custom Status 13		4	J4.13	<i>nvoAnnunCustom.bit12</i> <i>nvoCustomStatus[13].state</i> <i>nvoNodeStatus.inputs[1] {bit 4}</i>
14	Custom Status 14		5	J4.14	<i>nvoAnnunCustom.bit13</i> <i>nvoCustomStatus[14].state</i> <i>nvoNodeStatus.inputs[1] {bit 5}</i>
15	Custom Status 15		6	J4.15	<i>nvoAnnunCustom.bit14</i> <i>nvoCustomStatus[15].state</i> <i>nvoNodeStatus.inputs[1] {bit 6}</i>
16	Custom Status 16		7	J4.16	<i>nvoAnnunCustom.bit15</i> <i>nvoCustomStatus[16].state</i> <i>nvoNodeStatus.inputs[1] {bit 7}</i>

TABLE F-8. CCM-G EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
17	Common Alarm	0XD030	0	J5.1	<i>nvoAnnun8Point.bit0</i> <i>nvoAnnun4Point.bit0</i> <i>nvoFaultStatus.state</i> <i>nvoGenStatus.extended.bit0</i> <i>nvoNodeStatus.inputs[2] {bit 0}</i>
18	Low Fuel Level		1	J5.2	<i>nvoAnnunNFPA110.bit15</i> <i>nvoAnnun8Point.bit7</i> <i>nvoNodeStatus.inputs[2] {bit 1}</i>
19	Low Engine Temp		2	J5.3	<i>nvoAnnunNFPA110.bit8</i> <i>nvoAnnun8Point.bit4</i> <i>nvoNodeStatus.inputs[2] {bit 2}</i>
20	High Battery Voltage		3	J5.4	<i>nvoAnnunNFPA110.bit4</i> <i>nvoNodeStatus.inputs[2] {bit 3}</i>
21	Low Battery Voltage		4	J5.5	<i>nvoAnnunNFPA110.bit5</i> <i>nvoNodeStatus.inputs[2] {bit 4}</i>
22	Fail To Start		5	J5.6	<i>nvoAnnunNFPA110.bit7</i> <i>nvoNodeStatus.inputs[2] {bit 5}</i>
23	Overspeed		6	J5.7	<i>nvoAnnunNFPA110.bit13</i> <i>nvoNodeStatus.inputs[2] {bit 6}</i>
24	High Engine Temp		7	J5.8	<i>nvoAnnunNFPA110.bit10</i> <i>nvoAnnun8Point.bit4</i> <i>nvoNodeStatus.inputs[2] {bit 7}</i>

TABLE F-8. CCM-G EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
25	Low Oil Pressure	0XD040	0	J5.9	<i>nvoAnnunNFPA110.bit12</i> <i>nvoAnnun8Point.bit5</i> <i>nvoNodeStatus.inputs[3] {bit 0}</i>
26	Pre-High Engine Temp		1	J5.10	<i>nvoAnnunNFPA110.bit9</i> <i>nvoAnnun8Point.bit4</i> <i>nvoNodeStatus.inputs[3] {bit 1}</i>
27	Pre-Low Oil Pressure		2	J5.11	<i>nvoAnnunNFPA110.bit11</i> <i>nvoAnnun8Point.bit5</i> <i>nvoNodeStatus.inputs[3] {bit 2}</i>
28	Genset Running		3	J5.12	<i>nvoAnnunNFPA110.bit2</i> <i>nvoAnnun8Point.bit2</i> <i>nvoAnnun4Point.bit2</i> <i>nvoGenStatus.state</i> <i>nvoNodeStatus.inputs[3] {bit 3}</i>
29	Switch In Off (Not In Auto)		4	J5.13	<i>nvoGenStatus.control_switch</i> <i>nvoAnnunNFPA110.bit3</i> <i>nvoAnnun8Point.bit3</i> <i>nvoAnnun4Point.bit3</i> <i>nvoNotInAuto.state</i> <i>nvoNodeStatus.inputs[3] {bit 4}</i>
30	Switch In Run (Not In Auto)		5	J5.14	<i>nvoGenStatus.control_switch</i> <i>nvoAnnunNFPA110.bit3</i> <i>nvoAnnun8Point.bit3</i> <i>nvoAnnun4Point.bit3</i> <i>nvoNotInAuto.state</i> <i>nvoNodeStatus.inputs[3] {bit 5}</i>
31	Charger AC Failure		6	J5.15	<i>nvoAnnunNFPA110.bit6</i> <i>nvoNodeStatus.inputs[3] {bit 6}</i>
32	Low Coolant Level		7	J5.16	<i>nvoAnnunNFPA110.bit14</i> <i>nvoAnnun8Point.bit6</i> <i>nvoNodeStatus.inputs[3] {bit 7}</i>

TABLE F-9. CCM-T EVENTS AND CORRESPONDING NETWORK OUTPUTS

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
1	Source 1 Available	0XD010	0	J4.1	<i>nvoSrc1Available.state</i> <i>nvoAnnunExtended.bit0</i> <i>nvoAnnun8Point.bit0</i> <i>nvoAnnun4Point.bit0</i> <i>nvoNodeStatus.inputs[0] {bit0}</i>
2	Source 2 Available		1	J4.2	<i>nvoSrc2Available.state</i> <i>nvoAnnunExtended.bit1</i> <i>nvoAnnun8Point.bit1</i> <i>nvoAnnun4Point.bit1</i> <i>nvoNodeStatus.inputs[0] {bit1}</i>
3	Source 1 Connected		2	J4.3	<i>nvoSrc1Connected.state</i> <i>nvoAnnunNFPA110.bit0</i> <i>nvoAnnunExtended.bit2</i> <i>nvoAnnun8Point.bit2</i> <i>nvoAnnun4Point.bit2</i> <i>nvoNodeStatus.inputs[0] {bit2}</i>
4	Source 2 Connected		3	J4.4	<i>nvoSrc2Connected.state</i> <i>nvoAnnunNFPA110.bit1</i> <i>nvoAnnunExtended.bit3</i> <i>nvoAnnun8Point.bit3</i> <i>nvoAnnun4Point.bit3</i> <i>nvoNodeStatus.inputs[0] {bit3}</i>
5	Test/Exercise		4	J4.5	<i>nvoTestStatus.state</i> <i>nvoAnnunExtended.bit6</i> <i>nvoAnnun8Point.bit6</i> <i>nvoNodeStatus.inputs[0] {bit4}</i>
6	Backup Available?		5	J4.6	<i>nvoNodeStatus.inputs[0] {bit 5}</i>
7	Low Battery Voltage		6	J4.7	<i>nvoAnnunNFPA110.bit5</i> <i>nvoNodeStatus.inputs[0] {bit 6}</i>
8	High Battery Voltage		7	J4.8	<i>nvoAnnunNFPA110.bit4</i> <i>nvoNodeStatus.inputs[0] {bit 7}</i>

TABLE F-9. CCM-T EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
9	Transfer Pending (Elevator Signal)	0XD020	0	J4.9	<i>nvoTransPending.state</i> <i>nvoNodeStatus.inputs[1] {bit0}</i>
10	Charger AC Failure		1	J4.10	<i>nvoAnnunNFPA110.bit6</i> <i>nvoNodeStatus.inputs[1] {bit1}</i>
11	Bypass To Source 1		2	J4.11	<i>nvoNodeStatus.inputs[1] {bit 2}</i> <i>nvoAnnunExtended.bit14</i>
12	Bypass To Source 2		3	J4.12	<i>nvoNodeStatus.inputs[1] {bit 3}</i> <i>nvoAnnunExtended.bit15</i>
13	ATS Common Alarm		4	J4.13	<i>nvoFaultStatus.state</i> <i>nvoAnnunExtended.bit4</i> <i>nvoAnnun8Point.bit4</i> <i>nvoNodeStatus.inputs[1] {bit4}</i>
14	Not In Auto		5	J4.14	<i>nvoNotInAuto.state</i> <i>nvoAnnunNFPA110.bit3</i> <i>nvoAnnunExtended.bit5</i> <i>nvoAnnun8Point.bit5</i> <i>nvoNodeStatus.inputs[1] {bit5}</i>
15	Start Genset A (Source 2)		6	J4.15	<i>nvoStartCmd.state</i> <i>nvoNodeStatus.inputs[1] {bit 6}</i>
16	Start Genset B (Source 1)		7	J4.16	<i>nvoStartCmdB.state</i> <i>nvoNodeStatus.inputs[1] {bit 7}</i>

TABLE F-9. CCM-T EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
17	Custom Status 1	0xD030	0	J5.1	<i>nvoAnnunCustom.bit0</i> <i>nvoCustomStatus[1].state</i> <i>nvoNodeStatus.inputs[2] {bit 0}</i>
18	Custom Status 2		1	J5.2	<i>nvoAnnunCustom.bit1</i> <i>nvoCustomStatus[2].state</i> <i>nvoNodeStatus.inputs[2] {bit 1}</i>
19	Custom Status 3		2	J5.3	<i>nvoAnnunCustom.bit2</i> <i>nvoCustomStatus[3].state</i> <i>nvoNodeStatus.inputs[2] {bit 2}</i>
20	Custom Status 4		3	J5.4	<i>nvoAnnunCustom.bit3</i> <i>nvoCustomStatus[4].state</i> <i>nvoNodeStatus.inputs[2] {bit 3}</i>
21	Custom Status 5		4	J5.5	<i>nvoAnnunCustom.bit4</i> <i>nvoCustomStatus[5].state</i> <i>nvoNodeStatus.inputs[2] {bit 4}</i>
22	Custom Status 6		5	J5.6	<i>nvoAnnunCustom.bit5</i> <i>nvoCustomStatus[6].state</i> <i>nvoNodeStatus.inputs[2] {bit 5}</i>
23	Custom Status 7		6	J5.7	<i>nvoAnnunCustom.bit6</i> <i>nvoCustomStatus[7].state</i> <i>nvoNodeStatus.inputs[2] {bit 6}</i>
24	Custom Status 8		7	J5.8	<i>nvoAnnunCustom.bit7</i> <i>nvoCustomStatus[8].state</i> <i>nvoNodeStatus.inputs[2] {bit 7}</i>

TABLE F-9. CCM-T EVENTS AND CORRESPONDING NETWORK OUTPUTS (CONTINUED)

Fault Code (Input)	Description	Address	Bit	Hardware	Corresponding Network Variable(s)
25	Custom Status 9	0xD040	0	J5.9	<i>nvoAnnunCustom.bit8</i> <i>nvoCustomStatus[9].state</i> <i>nvoNodeStatus.inputs[3] {bit 0}</i>
26	Custom Status 10		1	J5.10	<i>nvoAnnunCustom.bit9</i> <i>nvoCustomStatus[10].state</i> <i>nvoNodeStatus.inputs[3] {bit 1}</i>
27	Custom Status 11		2	J5.11	<i>nvoAnnunCustom.bit10</i> <i>nvoCustomStatus[11].state</i> <i>nvoNodeStatus.inputs[3] {bit 2}</i>
28	Custom Status 12		3	J5.12	<i>nvoAnnunCustom.bit11</i> <i>nvoCustomStatus[12].state</i> <i>nvoNodeStatus.inputs[3] {bit 3}</i>
29	Custom Status 13		4	J5.13 J5.14	<i>nvoAnnunCustom.bit12</i> <i>nvoCustomStatus[13].state</i> <i>nvoNodeStatus.inputs[3] {bit 4}</i>
30	Custom Status 14		5	J5.15	<i>nvoAnnunCustom.bit13</i> <i>nvoCustomStatus[14].state</i> <i>nvoNodeStatus.inputs[3] {bit 5}</i>
31	Custom Status 15		6	J5.16	<i>nvoAnnunCustom.bit14</i> <i>nvoCustomStatus[15].state</i> <i>nvoNodeStatus.inputs[3] {bit 6}</i>
32	Custom Status 16		7	J5.16	<i>nvoAnnunCustom.bit15</i> <i>nvoCustomStatus[16].state</i> <i>nvoNodeStatus.inputs[3] {bit 7}</i>
1468	Network Error		NA		–