DNP Points List and Implementation
for Universal Controls

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DNP Points List for 6802 and 6803 Controls

This instruction sheet section provides Distributed Network Protocol (DNP) points and DNP implementation information for software **SG68023UInstaller-7.6.x**. The "x" can indicate any number from 0 to 255. Other related software component version information is found on the *Setup>General>Revisions* screen.

The DNP master station should define the 6802/3 switch controls with the following Status, Analog Input, Control, Analog Output, and Counter points:

Point	Count
Status	125
Analog Input	58
Control	40
Analog Output	4
Counter	16

The available DNP points are listed in Tables 1 through 6 on pages 2 through 19, in the same order they are presented for selection on the *Setup>Communication>Point Mapping* screens. 6802/3 Status, Analog Input, and Control points can be assigned to any SCADA DNP point index.

Point descriptions begin with a code number used to find the detailed definition in this instruction sheet. Refer to the "Communication Setup" section of S&C Instruction Sheet 1045-530, "S&C 6800 Series Automatic Switch Control: *Setup*." The code number for each point description is listed in this publication and is not the SCADA point index.

For a specific SCADA system, typically all 6802/3 switch controls operate with the same DNP point index configuration.

Unless otherwise noted, each point is on if the condition is logically true or active.

NOTICE
The source address in IntelliLink Setup Software is now 65432 instead of 1.

The 6802 and 6803 Automatic Switch Control features have multiple status points:

- **Open or Close**: 1-5
- **IntelliTeam SG System Operation**: 44-60, 75-77
- **Netlist Information**: 71-74

NOTICE
When uploading a setpoint or DNP points map file from any version earlier than 7.6.x into a 6801/6802/6803 Automatic Switch Control with 7.6.x firmware, the **Code Description** and **Class** fields for DNP Status Points associated with the **SAT** feature (**SAT In Progress**, **SAT Switch Contacts Closed**, **SAT Switch Contacts Open**, **SAT Prohibited Locally** and **SAT Ignore Open Disconnect**) if mapped will display "End" and "Class 1." These must be manually converted to "Reserved" and "No Event" respectively so the SCADA system receives static data for any points mapped beyond them.

Table 1. 6802/3 Status Points

Code #	Name—Definition
1	**Switch 1 Open—**On when contact status is **Open**. Otherwise, off.
2	**Switch 2 Open—**On when contact status is **Open**. Otherwise, off.
4	**Switch 1 Closed—**On when contact status is **Closed**. Otherwise, off.
5	**Switch 2 Closed—**On when contact status is **Closed**. Otherwise, off.
7	**Switch 1 Disabled—**On when switch operation is in the **Disabled** state, which reports when **Battery Bad** (Status Point 17) is on. Otherwise, off.
8	**Switch 2 Disabled—**As noted in Status Point 7, for Switch 2.
9	**Automatic Operation Enabled—**On when the **Automatic Operation** mode is enabled using either the faceplate switch or a SCADA command. Otherwise, off.
10	**Automatic Operation enabled for Switch 1—**This point is only applicable when Status Point 9 is enabled.
11	**Automatic Operation enabled for Switch 2—**This point is only applicable when Status Point 9 is enabled.
12	**SCADA Control Enabled—**On when the SCADA CONTROL faceplate switch is set to "Remote." Otherwise, off.
13	**Overcurrent Fault Detected, Switch 1—**On when the fault-detection circuitry registers an **Overcurrent Fault** condition. Off when cleared by the **Fault Indicator Reset Strategy** setting configured on the *Setup>General>Fault Detection* screen. Also off when manually cleared with the **Clear Faults** command in the LCD menu, the **Clear Faults** button on the *Setup>Site Related* screen, the faceplate/screenset pre-assigned USER COMMAND button, or the **Clear any outstanding Overcurrent Fault conditions present** control point. The **Overcurrent Fault** condition also clears when the switch control is reinitialized using IntelliLink Setup Software or a SCADA reset command.
14	**Overcurrent Fault Detected, Switch 2—**As above, for Switch 2. Otherwise, off.
15	**Sectionalizer Tripped, Switch 1—**On when any **Automatic Control** mode opens the switch. The point is cleared when the switch is closed for any reason. It is also cleared on reinitialization of the switch control using the setup software or when the SCADA CONTROL switch state is changed. Otherwise, off.

TABLE CONTINUED ▶

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
16	**Sectionalizer Tripped, Switch 2—**As above, for Switch 2. Otherwise, off.
17	**Battery Bad—**On when battery replacement is required unless the switch control is operating or has recently been operating on battery power. Otherwise, off.
18	**Maintenance Required—**On when some form of maintenance (other than battery replacement) is required. It is set when the battery charger stops functioning because of overvoltage or when the switch open/close contacts are not mutually exclusive. This is a summary point. An inspection of other status points can determine the exact cause. Otherwise, off.
19	**Open/Close Indication is Inconsistent, Switch 1—**On when both contacts are closed or open. Otherwise, off.
20	**Open/Close Indication is Inconsistent, Switch 2—**On when both contacts are closed or open. Otherwise, off.
21	**Control Power On—**On when ac control power is supplied to the control. Otherwise, off.
22	**Failure Override Set—**On when a SCADA operator executes the **Failure Override Latch-On** command to let the switch be operated even if the battery is bad. The point remains on until the override is disabled using the **Failure Override Latch-Off** command. Also, the point will go off and the **Failure Override** command will become disabled after a 15-minute timeout if it was not already turned off by the **Latch-Off** command. Otherwise, off.
23	**Battery System Low—**On when battery voltage is low, but the switch will operate. Otherwise, off.
24	**Battery Charger Problem—**On when the charging voltage applied to the battery system is too high and the charger is turned off. Otherwise, off.
25	**Battery Test in Progress—**On when the switch control is automatically testing the batteries at periodic intervals. During the test, battery voltage fluctuates. Otherwise, off.
26	**Cabinet Door Open—**On when the enclosure door is open. When the door is closed, this bit is cleared and all power to the faceplate LEDs is turned off. Otherwise, off.
27	**Temperature Sensor Bad—**On when the temperature sensor is reading out of range. Temperature-related correction factors will not be accurate when the sensor is incorrect. Otherwise, off.
28	**Phase A Overcurrent Fault, Switch 1—**On when the fault-detection circuitry registers an **Overcurrent Fault** condition. Off when cleared by the **Fault Indicator Reset Strategy** setting configured on the *Setup> General>Fault Detection* screen. Also off when manually cleared with the **Clear Faults** command in the LCD menu, the **Clear Faults** button on the *Setup>Site Related* screen, the faceplate/screenset pre-assigned USER COMMAND button, or the **Clear any outstanding Overcurrent Fault conditions present** control point. The **Overcurrent Fault** condition also clears when the switch control is reinitialized using IntelliLink Setup Software or a SCADA reset command.
29	**Phase A Overcurrent Fault, Switch 2—**As above for Phase A, Switch 2. Otherwise, off.
30	**Phase B Overcurrent Fault, Switch 1—**As above for Phase B, Switch 1. Otherwise, off.
31	**Phase B Overcurrent Fault, Switch 2—**As above for Phase B, Switch 2. Otherwise, off.
32	**Phase C Overcurrent Fault, Switch 1—**As above for Phase C, Switch 1. Otherwise, off.

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
33	**Phase C Overcurrent Fault, Switch 2**—As above for Phase C, Switch 2. Otherwise, off.
34	**Overcurrent Ground Fault, Switch 1**—As above for ground, Switch 1. Otherwise,
35	**Overcurrent Ground Fault, Switch 2**—As above for ground, Switch 2. Otherwise, off.
36	**Loss of Voltage on Any Configured Voltage Channel, Switch 1**—On when the voltage sensor on a configured voltage channel shows a **Loss of Voltage** status. For example, pad-mounted gear may be configured with three voltage sensors or six voltage sensors. Otherwise, off.
37	**Loss of Voltage on Any Configured Voltage Channel, Switch 2**—On when the voltage sensor on a configured voltage channel shows a **Loss of Voltage** status. For example, pad-mounted gear may be configured with three voltage sensors or six voltage sensors. Otherwise, off.
38	**Phase A Reverse Current, Switch 1**—On when the current on Phase A is flowing in the direction opposite to the **Normal Direction** setting configured in the switch control. The switch control identifies a **Reverse Current** condition when the voltage-current phase angle deviates more than 90 degrees from the value set during installation for the **Unity Power Factor** setting. Otherwise, off.
39	**Phase B Reverse Current, Switch 1**—As above, for Phase B, Switch 1. Otherwise, off.
40	**Phase C Reverse Current, Switch 1**—As above, for Phase C, Switch 1. Otherwise, off.
41	**Phase A Reverse Current, Switch 2**—On when the current on Phase A is flowing in the direction opposite to the **Normal Direction** setting configured in the switch control. The switch control identifies a **Reverse Current** condition when the voltage-current phase angle deviates more than 90 degrees from the value set during installation for the **Unity Power Factor** setting. Otherwise, off.
42	**Phase B Reverse Current, Switch 2**—As above, for Phase B, Switch 2. Otherwise, off.
43	**Phase C Reverse Current, Switch 2**—As noted on the previous page, for Phase C, Switch 2. Otherwise, off.
44	**Switch Control Not Transfer Ready**—Active only for the reporting switch control. On when a switch operation is not consistent with the expected team operation (i.e. incomplete or manual switch operation). This point is also on if any of these status points are on: **Switch Disabled** (Status Points 7 and 8), **Automatic Operation Disabled** (Status Point 9), or **Switch Position Inconsistent** (Status Points 19 and 20). This point is used in conjunction with the **Not All Teams Transfer Ready** status point (Status Point 45) to identify the specific team member where a problem exists. Otherwise, off.
45	**Not All Teams Transfer Ready**—On when any teams in which this switch control participates are **Not Transfer Ready** (Status Point 44). This may be because of an individual team member condition, team-wide conditions such as isolating a fault, team configuration or coordination problems, **Restoration Prohibited** (Status Point 49), or the **Team Logic** setting is set to the **Disabled** state on the *Team>Setup* screen. If Status Point 44 is on in one team member, Status Point 45 is also on in the other team members. Otherwise, off. **Note:** Unless otherwise prohibited, team member controls revert to **Standalone Sectionalizing** logic when **Not Transfer Ready** (this status point) is active in all teams in which that control participates, whether because of local conditions or conditions at adjacent team members.

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
46	**Automatic Transfer Operation in Progress—**On when any team defined in the control is actively performing an **Automatic Transfer** operation. Otherwise, off.
47	**Automatic Return to Normal Operation in Progress—**On when any team defined in the control is actively performing a **Return-to-Normal** operation. Otherwise, off.
48	**Setup Data Revision—**On when the configuration entries for any enabled team defined in the control are modified. It remains on until the **Team Setup** setpoint on the *Setup>Team* screen has been toggled from **Stopped** mode back to **Running** mode for any team where the configuration entries have been changed. Otherwise, off.
49	**Restoration Prohibited by SCADA—**On when **Prohibit Automatic Restoration Latch On** (Control Point 13) is received, the **IntelliTeam SG Restoration** mode is disabled using the *IntelliTeam SG>Team Summary* screen, or the **Automatic Restoration** mode is set "Prohibited" on the front panel. When this point is on, no switch in any team in which this switch control participates will be allowed to automatically close, preventing automatic load restoration. This point is off when the **Prohibit Automatic Restoration Latch Off** command (Control Point 13) is received, the **IntelliTeam SG Restoration** mode is enabled using the *IntelliTeam SG>Team Summary* screen, or the **Automatic Restoration** mode is set to **Enabled** state on the front panel. Otherwise, off.
50	**Restoration Prohibited by Team Timer—**On when the **Team Transfer Process** timer expires in this control resulting in the **Prohibit Restoration** mode being enabled for at least one of the teams in which this control participates. Only the team for which this timer has expired is prohibited from further automatic load restoration. This point is cleared when the **Prohibit Load Restoration Latch Off** command (Control Point 12) is received, the **IntelliTeam SG Restoration** mode is enabled using the *IntelliTeam SG>Team Summary* screen, or the **Automatic Restoration** mode is set "Enabled" on the front panel. Otherwise, off.
51	**Source Loading Data is Active—**On when the **Real-time Feeder Loading** logic is active and in use. This point does not indicate whether the control is using actual real-time feeder loading data received from a DNP master, or using the **Default Source Segment Loading** setting. Otherwise, off.
52	**Real-Time Load Data May be Old or Abnormal—**On when the received **DNP Analog Output** value is less than the real-time three-phase load as sensed by the switch. It is also set if the real-time feeder-loading data have not updated within the configured time interval. Off when new data are received and the analog value is equal to or greater than the local measured load. Otherwise, off.
53	**Team 1 Ready To Transfer—**On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
54	**Team 2 Ready To Transfer—**On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
55	**Team 3 Ready To Transfer—**On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
56	**Team 4 Ready To Transfer—**On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
57	**Team 5 Ready To Transfer—**On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
58	**Team 6 Ready To Transfer**—On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
59	**Team 7 Ready To Transfer**—On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
60	**Team 8 Ready To Transfer**—On when the team is in the **Ready to Transfer** state. This point is off if the team is not in use, contains an **Error** condition, or the line section represented by the team contains a fault.
61	**Loss of Voltage on Any Phase, Switch 1**—On when voltage is off on any phase.
62	**Overcurrent Fault on Any Phase, Switch 1**—On when fault current is sensed on any phase.
63	**Switch 1 Tripped to Lockout**—On when Switch 1 is in the **Locked Out** state as the result of an event. The IntelliTeam system may begin the reconfiguration process. Off when the **Close Switch 1** command is given. Otherwise, off.
64	**Manual Operation Detected for Switch 1**—On when the IntelliTeam system senses that the switch has been operated manually.
65	**Switch 1 IntelliTeam Switch Status Open**—Indicates the IntelliTeam system has properly received the switch status. This point should always agree with the **Switch 1 Open** status point (Status Point 1).
66	**Loss of Voltage on Any Phase, Switch 2**—On when voltage is off on any phase.
67	**Overcurrent Fault on Any Phase, Switch 2**—On when fault current is sensed on any phase.
68	**Switch 2 Tripped to Lockout**—On when Switch 2 is in the **Locked Out** state as the result of an event. The IntelliTeam system may begin the reconfiguration process. Off when the **Close Switch 1** command is given. Otherwise, off.
69	**Manual Operation Detected for Switch 2**—On when the IntelliTeam system senses the switch has been operated manually.
70	**Switch 2 IntelliTeam Switch Status Open**—Indicates the IntelliTeam system has properly received the switch status. This point should always agree with the **Switch 2 Open** status point (Status Point 2).
71	**Netlist Missing Runners**—On when the received runner count doesn't match the expected runner count. The **Rapid Self Healing** feature is disabled as long as this is the case. Otherwise, off.
72	**Netlist Settings Propagation**—On when the local control is receiving Netlist records from either a download or through propagation. If this is a Netlist download the status point remains on until all expected runners arrive with the new Netlist. Otherwise, off.
73	**Netlist Settings Accepted**—On when a new Netlist has been successfully validated. Off when a Netlist is being downloaded or propagated. Off if the user has changed any team settings so they are different from the screenset. Otherwise, off.
74	**Netlist Propagation Enabled**—On when the IntelliLink software screenset or SCADA enables Netlist propagation. Otherwise, off. (Starting with version 7.1.x, the **Netlist Propagation** mode is always in the **Enabled** state; therefore, this status point is always on.)
75	**IntelliTeam II Mode Active**—On when IntelliTeam II system software is in use. Otherwise, off.

TABLE CONTINUED ▶

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
76	**IT Out of Normal S1 State—**On when the switch is not in the **Normally Open** or **Normally Closed** state for the IntelliTeam system. Off when the switch is in the **Normally Open** or **Normally Closed** state for the IntelliTeam system. Otherwise, off.
77	**IT Out of Normal S2 State—**On when the switch is not in the **Normally Open** or **Normally Closed** state for the IntelliTeam system. Off when the switch is in the **Normally Open** or **Normally Closed** state for the IntelliTeam system. Otherwise, off.
78	**Switch 1 PLI Open—**On when the switch has been opened by the **Phase Loss Isolation** (PLI) logic. Otherwise, off.
79	**Ac Power Not Present—**On when ac power is not available to the control. Otherwise, off.
80	**Battery Disconnected—**On when battery is disconnected. Otherwise, off.
81	Reserved.
82	Reserved.
83	Reserved.
84	Reserved.
85	Reserved.
86	Reserved.
87	Reserved.
88	**Wi-Fi Is Connected—**On when a Wi-Fi connection to the control is established. Otherwise, off.
89	**Wi-Fi Intrusion Alarm—**On when the Wi-Fi module reports a replay attack or improper authentication. Turned off by the user with the **Clear Wi-Fi Intrusion Alarm** command (Control Point 20).
90	**Wi-Fi Disabled by SCADA—**On when the **Disable Wi-Fi** command (Control Point 17) is received. Off when the **Enable Wi-Fi** command (Control Point 18) is received. The **Enable/Disable Wi-Fi** command (Control Point 14) toggles Wi-Fi communication on and off; on when Wi-Fi is disabled and off when Wi-Fi is enabled. Otherwise, off.
91	**Switch 2 PLI Open—**On when the switch has been opened by the **Phase Loss Isolation** (PLI) logic. Otherwise, off.
92	**Alarm—**On when any alarm is active. Otherwise, off.
93	**Warning—**On when any warning is active. Otherwise, off.
94	**Error—**On when any error is active. Turned off by a user action to clear the error.
95	**Switch 1 Phase A Loss of Voltage—**On when Phase A Voltage falls below the configured **Loss of Voltage Threshold** setting. Otherwise, off.
96	**Switch 1 Phase B Loss of Voltage—**Same as noted in Status Point 95 for Phase B.
97	**Switch 1 Phase C Loss of Voltage—**Same as noted in Status Point 95 for Phase C.
98	**Switch 2 Phase A Loss of Voltage—**Same as noted in Status Point 95 for Phase A.

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
99	**Switch 2 Phase B Loss of Voltage**—Same as noted in Status Point 95 for Phase B.
100	**Switch 2 Phase C Loss of Voltage**—Same as noted in Status Point 95 for Phase C.
101	**Comm System has Poor Quality**—On when the **Bad Health** alarm is active on the *Link Keep Alive Tests* screen and/or the *Diagnostic Communications Tests* screen. Otherwise, off.
102	**IntelliLink Intrusion**—On when an IntelliLink software log-in attempt failed three times, after which all users are locked out for 15 minutes. Otherwise, off.
103	**IntelliLink Session Active**—On when user is presently logged in to the control. Otherwise, off.
104	**Not all Teams Xfer Ready for X sec**—On when any team in which this control is a member is in the **Out of Ready** state for a time exceeding the **Not All Teams Transfer Ready for X Seconds** timer. The status point becomes inactive when a new valid coach arives and the team goes back into the **Ready** state.
105	**Prohibit Restoration Remotely Transmitted**—On when the local device sends the **Prohibit Restoration SCADA** command to remote devices in the Remote Prohibit Restoration Transmit List table because of an active **Hot Line Tag**, **Frequency Trip**, or **Manual Operation** state, or when a **Prohibit Restoration** state is activated via a front panel, IntelliLink software screen, or SCADA command. The status point is cleared when the device receives a **Clear Remote Prohibit Restoration Status** command from SCADA. Status Point = 0x1F00.
106	**Enable Restoration Remotely Transmitted**—On when the local device sends the **Clear Remote Prohibit Restoration Status** command to remote devices in the Remote Prohibit Restoration Transmit List table. This event can be triggered by executing a **Clear Remote Prohibit Restoration Status** command via IntelliLink or receiving an **IT Clear PR to all Devices** command from SCADA. The status point is cleared when the device receives the **Clear Remote Enable Restoration Status** control point (Control Point 30). Status Point = 0x1F01.
107	**User-Defined Input 1**—On when the User-Defined Input at J20-1 has a change from an **Inactive** to an **Active** state or is being held in the **Active** state pending an acknowledgement. When configured to execute a command such as the **Prohibit Restoration** command, the **DNP** control point or a front panel command can execute an **Enable Restoration** command to cancel the **Prohibit Restoration** command. A subsequent user-defined input change from an **Inactive** to an **Active** state would then re-execute the **Prohibit Restoration** command. (Range: Disable Automatic Operation, Prohibit Restoration, Block Close Operations, Block Open and Close Operations, and None; Default: None)
108	**User-Defined Input 2**—On when the User-Defined Input at J20-2 has a change from an **Inactive** to an **Active** state or is being held in the **Active** state pending an acknowledgement. When configured to execute a command such as the **Prohibit Restoration** command, the **DNP** control point or a front panel command can execute an **Enable Restoration** command to cancel the **Prohibit Restoration** command. A subsequent user-defined input change from an **Inactive** to an **Active** state would then re-execute the **Prohibit Restoration** command. (Range: Disable Automatic Operation, Prohibit Restoration, Block Close Operations, Block Open and Close Operations, and None; Default: None)

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
109	**User-Defined Input 3—**On when the User-Defined Input at J20-3 has a change from an **Inactive** to an **Active** state or is being held in the **Active** state pending an acknowledgement. When configured to execute a command such as the **Prohibit Restoration** command, the **DNP** control point or a front panel command can execute an **Enable Restoration** command to cancel the **Prohibit Restoration** command. A subsequent user-defined Input change from an **Inactive** to an **Active** state would then re-execute the **Prohibit Restoration** command. (Range: Disable Automatic Operation, Prohibit Restoration, Block Close Operations, Block Open and Close Operations, and None; Default: None)
110	**Transfer Trip Enabled—**On when the **Transfer Trip** mode is enabled to allow the local device to send an **Initiate Transfer Trip** command to all non-zero RTU addresses in the Remote Transfer Trip Transmit List table after an **Open and Lockout** state because of a protection or Automatic Sectionalizing event. Status point = 0x1F02.
111	**Disregard First Overcurrent Active—**On when the **Disregard First Overcurrent** setpoint is set to "Yes" on the *Setup>Restoration>IntelliTeam SG* screen, or the **Enable DIFF** control point (Control Point 38) has been received. Otherwise, off.
112	**SW1 Direction 1 Current Flow—**On when the device is properly configured and power is flowing through the circuit in direction 1. Status point = 0x167.
113	**SW1 Direction 2 Current Flow—**On when the device is configured incorrectly or circuit conditions cause direction 2 current flow, possibly because of distributed generation on the circuit. Status point = 0x168.
114	**SW2 Direction 1 Current Flow—**On when the device is properly configured and power is flowing through the circuit in direction 1. Status point = 0x167.
115	**SW2 Direction 2 Current Flow—**On when the device is configured incorrectly or circuit conditions cause direction 2 current flow, possibly because of distributed generation on the circuit. Status point = 0x168.
116	**Transfer Trip Prohibit Restoration Executed—**On when an **Initiate Transfer Trip** control point has been received and executed. Off when the **Prohibit Restoration** state is no longer active and the control will be allowed to close by an automatic or manual operation. **Note:** This status point only applies to devices not teamed with a distributed generation source. When teamed with distributed generation, this status point will not get activated, even if a **Transfer Trip** command is initiated and executed. Status point = 0x021C.
117	**Remote Prohibit Restoration Enabled from Local—**On when the **Enable Remote Transmit from Local P.R.** setting is enabled on the local device. Status point = 0x1F03.
118	**Remote Prohibit Restoration Enabled from SCADA—**On when the **Enable Remote Transmit from SCADA P.R.** setting is enabled on the local device by a SCADA **Latch-On** command. Status point = 0x1F04.
119	**DG Reconnect Delay Terminated—**The **DG Reconnect Delay** timer is aborted because of an abnormal system condition. The **Transfer Trip Prohibit Restoration** (TTPR) state remains active on the device and reconnecting the distributed generation source back on the grid must be performed manually.
120	**Switch 1 Close Op Blocked—**On when the user-defined input is also set to block operation (block **Close** or block both **Open** and **Close** operations) and they are active. The status will clear when the **User-Defined Input** status points are inactive.

Table 1. 6802/3 Status Points—Continued

Code #	Name—Definition
121	**Switch 1 Open Op Blocked**—On when the user-defined input is also set to block operation (block **Close** or block both **Open** and **Close** operations) and they are active. The status will clear when the **User-Defined Input** status points are inactive.
122	**Switch 2 Close Op Blocked**—On when the user-defined input is also set to block operation (block **Close** or block both **Open** and **Close** operations) and they are active. The status will clear when the **User-Defined Input** status points are inactive.
123	**Switch 2 Open Op Blocked**—On when the user-defined input is also set to block operation (block **Close** or block both **Open** and **Close** operations) and they are active. The status will clear when the **User-Defined Input** status points are inactive.
124	**Transfer Declined Excess Load**—Applies to all active teams configured within a control. Active when a transfer attempt has been declined because of load within the team(s) to be restored that exceeds the present capacity of the alternate source. Otherwise, off if another reason for the declined transfer occurs at the same control, if the transfer stops because of a **Prohibit Restoration** state or other error condition at any team member of this team, if the transfer succeeds at any team member of this team, or 5 minutes passes at this control with no further transfer-declined conditions as a result of excessive loading.
125	**Transfer Declined Segment Limit**—Applies to all active teams configured within a control. Active when a transfer attempt has been declined because of the number of teams being requested for restoration exceeding the line-segment limit associated with the alternate source. Otherwise, off if another reason for the declined transfer occurs at the same control, if the transfer stops because of a **Prohibit Restoration** state or other error condition at any team member of this team, if the transfer succeeds at any team member of this team, or 5 minutes passes at this control with no further transfer-declined conditions as a result of line-segment limit.
126	**System Voltage Unrecognized**—Active when the local system voltage is not recognized as a supported system voltage. It remains active until the issue is resolved through correct configuration of the system voltage setting.
127	**Sensor Cfg**—On when the **Sensor Type** setpoint on the *Setup>General>Sensor Cfg* screen is set for **2 PTs, 6 Lindsey Current-only** sensor mode and off when set for **6 PTs, 6 1000:1 CTs** sensor mode.
128	**Xfer Trip PR Initiated (DG POI)**—Active when the DG POI device has received a **Transfer Trip** message and has initiated **Prohibit Restoration** mode on the POI IntelliTeam system device. Otherwise, off when the DG POI device is in any other state.
129	**NET: Missing Runners in Adjacent FeederNet**—Active when a missing runner condition exists in any adjacent FeederNet in an IntelliTeam system. Otherwise, off if there are no missing runner conditions in any adjacent FeederNet in an IntelliTeam system.
130	**Transfer Trip Sent**—Active when a device sends a **Remote Transfer Trip** message via the Remote Transmit list after it has opened and locked out because of a protection or automatic sectionalizing event. It is cleared when the device is closed and in the **Ready** state.
131	**PR Due To Load Shed**—On when a Load Shedding event occurs at a team with a **Load Priority** setting configured in the do-not-restore range 20 to 25, activating a **Prohibit Restoration** state for that team. This point will be off when the source circuit returns to normal allowing the **PR Due To Load Shed** status point to clear, or when the **Prohibit Restoration** state is cleared by local command or SCADA command.
132	**Shots To Lockout Status Switch 1**—On when **Shots to Lockout** feature for switch 1 is active. Otherwise, off.
133	**Shots To Lockout Status Switch 2**—On when **Shots to Lockout** feature for switch 2 is active. Otherwise, off.
134	**GPS Not Active Time Source**—On when the **GPS** feature is not the active time source. Otherwise, off.

Table 2. 6802/3 Analog Input Points

Code #	Name—Definition
1	**90% Voltage Reference Standard**—This is a constant representing 90% of the full-scale value.
2	**0% Voltage Reference Standard**—This is a constant representing the zero value.
3	**Neutral Current of Switch 1**—Taken as the vector sum of the phase currents on Phases A, B, and C. Current is measured using true RMS techniques. Each count equals one ampere.
4	**Current, Phase A Switch 1**—Single-phase true RMS current measured on Phase A. Each count equals one ampere.
5	**Current, Phase B Switch 1**—Single-phase true RMS current measured on Phase B. Each count equals one ampere.
6	**Current, Phase C Switch 1**—Single-phase true RMS current measured on Phase C. Each count equals one ampere.
7	**Neutral Current of Switch 2**—Taken as the vector sum of the phase currents on Phases A, B, and C. Current is measured using true RMS techniques. Each count equals one ampere.
8	**Current, Phase A Switch 2**—Single-phase true RMS current measured on Phase A. Each count equals one ampere.
9	**Current, Phase B Switch 2**—Single-phase true RMS current measured on Phase B. Each count equals one ampere.
10	**Current, Phase C Switch 2**—Single-phase true RMS current measured on Phase C. Each count equals one ampere.
15	**Voltage, Phase A Switch 1**—Single-phase voltage measured on Phase A of Switch 1. Voltage is measured using true RMS techniques and scaled to yield a nominal value of 120 Vac. Configuration of the switch control at installation provides the scaling factors such as voltage transformer turn ratio, etc. In cases where loads are connected in a Delta (phase-to-phase) configuration, the switch control sensor conditioning module is jumpered to yield phase-to-phase voltage readings. Voltage is reported in units of one sensor count equals 0.1 Vac RMS.
16	**Voltage, Phase B Switch 1**—Phase-to-ground or phase-to-phase voltage (depending on setup) measured on Pole B, Switch 1. Each count equals 0.1 Vac RMS.
17	**Voltage, Phase C Switch 1**—Phase-to-ground or phase-to-phase voltage (depending on setup) measured on Pole C, Switch 1. Each count equals 0.1 Vac RMS.
18	**Voltage, Phase A Switch 2**—Phase-to-ground or phase-to-phase voltage (depending on setup) measured on Pole A, Switch 2. Each count equals 0.1 Vac RMS.
19	**Voltage, Phase B Switch 2**—Phase-to-ground or phase-to-phase voltage (depending on setup) measured on Pole B, Switch 2. Each count equals 0.1 Vac RMS.
20	**Voltage, Phase C Switch 2**—Phase-to-ground or phase-to-phase voltage (depending on setup) measured on Pole C, Switch 2. Each count equals 0.1 Vac RMS.
21	**Phase Angle, on Phase A Switch 1**—Each count equals 0.125 degree.
22	**Phase Angle, on Phase B Switch 1**—Each count equals 0.125 degree.

Table 2. 6802/3 Analog Input Points—Continued

Code #	Name—Definition
23	**Phase Angle, on Phase C Switch 1**—Each count equals 0.125 degree.
24	**Phase Angle, on Phase A Switch 2**—Each count equals 0.125 degree.
25	**Phase Angle, on Phase B Switch 2**—Each count equals 0.125 degree.
26	**Phase Angle, on Phase C Switch 2**—Each count equals 0.125 degree.
27	**Single-Phase kvars, Phase A Switch 1**—Kvars (volt-amperes, reactive) are calculated from single-phase true RMS voltage and current sensor values and the respective voltage-current phase angle. Each count equals one kvar.
28	**Single-Phase kvars, Phase B Switch 1**—As noted in Analog Input Point 27.
29	**Single-Phase kvars, Phase C Switch 1**—As noted in Analog Input Point 27.
30	**Single-Phase kvars, Phase A Switch 2**—As noted in Analog Input Point 27.
31	**Single-Phase kvars, Phase B Switch 2**—As noted in Analog Input Point 27.
32	**Single-Phase kvars, Phase C Switch 2**—As noted in Analog Input Point 27.
33	**Cabinet Temperature**—In units of degrees Fahrenheit.
34	**Battery Voltage**—Nominally 24 Vdc. If ac power is on, this value is updated only during battery testing. If ac power is off, this value is continuously updated. One count equals 0.035 Vdc.
35	**Single-Phase kW, Phase A Switch 1**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
36	**Single-Phase kW, Phase B Switch 1**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
37	**Single-Phase kW, Phase C Switch 1**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
38	**Single-Phase kVA Phase A Switch 1**—Each count equals one kVA.
39	**Single-Phase kVA Phase B Switch 1**—Each count equals one kVA.
40	**Single-Phase kVA Phase C Switch 1**—Each count equals one kVA.
41	**Single-Phase kW, Phase A Switch 2**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
42	**Single-Phase kW, Phase B Switch 2**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
43	**Single-Phase kW, Phase C Switch 2**—Calculated using instantaneous voltage and current, and the respective voltage-current phase angle. Each count equals one kW.
44	**Single-Phase kVA Phase A Switch 2**—Each count equals one kVA.
45	**Single-Phase kVA Phase B Switch 2**—Each count equals one kVA.
46	**Single-Phase kVA Phase C Switch 2**—Each count equals one kVA.

Table 2. 6802/3 Analog Input Points—Continued

Code #	Name—Definition
47	**Total kvars Switch 1—**Sum of kvar Phase A, kvar Phase B, and kvar Phase C. Each count equals one kvar.
48	**Total kvars Switch 2—**Sum of kvar Phase A, kvar Phase B, and kvar Phase C. Each count equals one kvar.
49	**Total kW Switch 1—**Sum of kW Phase A, kW Phase B, and kW Phase C. Each count equals one kW.
50	**Total kW Switch 2—**Sum of kW Phase A, kW Phase B, and kW Phase C. Each count equals one kW.
51	**Total kVA Switch 1—**Sum of kVA Phase A, kVA Phase B, and kVA Phase C. Each count equals one kVA.
52	**Total kVA Switch 2—**Sum of kVA Phase A, kVA Phase B, and kVA Phase C. Each count equals one kVA.
53	**Average Three-Phase Current Switch 1—**Average of Phase A Current, Phase B Current, and Phase C Current. Each count equals one ampere.
54	**Average Three-Phase Current Switch 2—**Average of Phase A Current, Phase B Current, and Phase C Current. Each count equals one ampere.
55	**Fault Magnitude, Pole 1 Switch 1—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
56	**Fault Magnitude, Pole 2 Switch 1—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
57	**Fault Magnitude, Pole 3 Switch 1—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
58	**Fault Magnitude, Neutral Switch 1—**Taken as the vector sum of the phase currents on Phases A, B, and C that is over the **Ground Fault Detection Current Level** setting.
59	**Fault Magnitude, Pole 1 Switch 2—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
60	**Fault Magnitude, Pole 2 Switch 2—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
61	**Fault Magnitude, Pole 3 Switch 2—**Single-phase peak RMS current measured on Phase A that is over the **Phase Fault Detection Current Level** setting.
62	**Fault Magnitude, Neutral Switch 2—**Taken as the vector sum of the phase currents on Phases A, B, and C that is over the **Ground Fault Detection Current Level** setting.

6802/3 Control Points

The object type must be configured on the *Setup>Point Mapping>Controls* screen for each control point when it is mapped. Only the configured object type will be accepted and acted on for that control point. Some control points will not work with all object types. The available object types are listed for each control point:

- Control points related to **Open** or **Close** commands: 1–5.
- Control points related to the IntelliTeam SG system: 11–13.

Table 3. 6802/3 Control Points

Code #	Name—Definition
1	**Open or Close Switch 1—SCADA—**This command may be issued using either the **Select/Operate** sequence, the **Direct Operate** function, or the **Direct Operate without Ack** function. Both **Trip** and **Close** commands are valid for this point.
2	**Open or Close Switch 2—SCADA—**This command may be issued using either the **Select/Operate** sequence, the **Direct Operate** function, or the **Direct Operate without Ack** function. Both **Trip** and **Close** commands are valid for this point.
4	**Issue the Shots-to-Lockout command to Switch 1—**This command may be issued using either the **Select/Operate** sequence, the **Direct Operate** function, or the **Direct Operate without Ack** function. Only a **Close** command is valid for this point. This command is ignored and returns an error if the switch is not open or the **Automatic Operation** mode is not enabled.
5	**Issue the Shots-to-Lockout command to Switch 2—**This command may be issued using either the **Select/Operate** sequence, the **Direct Operate** function, or the **Direct Operate without Ack** function. Only a **Close** command is valid for this point. This command is ignored and returns an error if the switch is not open or the **Automatic Operation** mode is not enabled.
	Note: (Codes 1–5): These commands are ignored and return an error if a **Bad Battery** condition is active and the **Failure Override** command has not been issued, or the external LOCAL/REMOTE switch in the motor operator cabinet associated with the intended position is set to "Local." These commands are ignored if the LOCAL/REMOTE switch is not in the **Remote** position.
6	**Clear any outstanding Overcurrent Fault conditions present—**This command must be issued using a **Pulse-On** command. The fault condition otherwise remains active until cleared by the **Fault Indicator Reset Strategy** setting selected on the *Setup>General>Fault Detection* screen.
7	**Enable/Disable Failure Override status—**This command must be issued using the **Latch On/Off** request in the control relay output block. This allows **Open** and **Close** commands to be processed even if the **Switch Not Ready** condition is active.
8	**Enable/Disable Automatic Operation—**This command must be issued using the **Latch On/Off** request in the control relay output block. In **Automatic** mode, the switch control automatically opens the switch if a preconfigured recloser sequence is recognized after a detected fault. **Note:** The **Automatic Operation** mode is not disabled when the faceplate REMOTE/LOCAL switch is set to **Local** operation.
9	**Enable/Disable Automatic Operation, Switch 1—**This command must be issued using the **Latch On/Off** request in the control relay output block. See Control Point 8.
10	**Enable/Disable Automatic Operation, Switch 2—**This command must be issued using the **Latch On/Off** request in the control relay output block. See Control Point 8.
11	**IntelliTeam Clear Manual Operation Status—SCADA—**A **Pulse-On** or **Latch-On** command is used to clear a manual operation. This allows the IntelliTeam restoration system to return to the **Ready** state, provided the switches are in their IntelliTeam **Normally Open** or **Normally Closed** state.

Table 3. 6802/3 Control Points—Continued

Code #	Name—Definition
13	**IntelliTeam Prohibit Restoration**—This command must be issued using the **Latch On/Off** request in the control relay output block. When in the **Latched** state, this command prevents the local switch and any switches in any team in which this switch control participates from automatically closing to restore load under any circumstances.
14	**Netlist Propagation Enable/Disable**—In the **Enabled** state, allows new Netlist requests and Netlist transmissions. In the **Disabled** state, multiple downloads of a Netlist can be sent to a local control. (Starting with version 7.1.x, the **Netlist Propagation** mode is always in the **Enabled** state; therefore, this control point does not operate.)
15	**Wi-Fi Enable/Disable**—This command enables or disables local Wi-Fi communication.
16	**Start Battery Test—SCADA**—This command may be issued using a **Pulse-On** or **Latch-On** command. If ac power is available, the battery charger is disconnected for several minutes during the test. If ac power is not available, a brief impedance test is used to evaluate the battery condition.
17	**Wi-Fi Disable**—This command disables local Wi-Fi communication.
18	**Wi-Fi Enable**—This command enables local Wi-Fi communication.
19	**Wi-Fi Test**—This command activates the Wi-Fi beacon transmitter for troubleshooting purposes.
20	**Clear Wi-Fi Intrusion Alarm**—This command clears an active **Wi-Fi Intrusion** alarm.
21	**Clear Errors**—This command clears all error flags. Alarms and warnings are not affected.
22	**Clear Warnings**—This command clears all warning flags. Errors and alarms are not affected. The **Active Warnings** function will reassert in approximately one second.
23	**Clear Alarms**—This command clears all alarm flags. Errors and warnings are not affected. The **Active Alarms** function will reassert in approximately one second.
24	**Clear OC Faults Switch 1**—This command clears the **Overcurrent Fault** status for Switch 1.
25	**Clear OC Faults Switch 2**—This command clears the **Overcurrent Fault** status for Switch 2.
26	**Manual Operation Status Switch 1**—This command clears the **Manual Operation** status for Switch 1.
27	**Manual Operation Status Switch 2**—This command clears the **Manual Operation** status for Switch 2.
28	**Clear IntelliLink Intrusion**—This command clears the **IntelliLink Intrusion** status point.
29	**Clear Remote Prohibit Restoration Status**—This command clears the **Prohibit Restoration Remotely Transmitted** status point (Status Point 105). Control point = 0x1F00.
30	**Clear Remote Enable Restoration Status**—This command clears the **Enable Restoration Remotely Transmitted** status point (Status Point 106). Control point = 0x1F01.
31	**Remote Transmit Enable Restoration**—When received, the device clears the **Prohibit Restoration** state locally (only if **Hot Line Tag**, **Frequency Trip**, or **Manual Operation** states are not active) and then sends a command to clear the **Prohibit Restoration** state to all devices in the Remote Prohibit Restoration Transmit List table. The **Enable Remote Transmit from SCADA P.R.** setting must be enabled to perform this action. Control point = 0x1F02.

TABLE CONTINUED ▶

Table 3. 6802/3 Control Points—Continued

Code #	Name—Definition
32	**Initiate Transfer Trip Switch 1**—This command sets the **Transfer Trip** state on a single device. The device issues a command to **Open the switch in Automatic** mode (not a manual operation) and verifies the operation. If an **Open** state is confirmed, the device then activates the **Prohibit Restoration** mode on the team facing the distributed generation source (unless it's a distributed generation team) to prevent restoration of that line segment. For the **Prohibit Restoration** mode to be set, the receiving device must be an S&C switch control that is part of an IntelliTeam SG automatic restoration system. SW1 = 0x202.
33	**Initiate Transfer Trip Switch 2**—This command sets the **Transfer Trip** mode on a single device. The device issues a command to **Open** the switch in **Automatic** mode (not a manual operation) and verifies the operation. If an **Open** state is confirmed, the device then activates the **Prohibit Restoration** mode on the team facing the distributed generation source (unless it's a distributed generation team) to prevent restoration of that line segment. For the **Prohibit Restoration** mode to be set, the receiving device must be an S&C switch control that is part of an IntelliTeam SG system. SW2 = 0x203.
34	**Acknowledge User Defined Input 1**—When User-Defined Input 1 has been configured to require a SCADA acknowledgement it will be held active after the physical input state has gone inactive until this control point is received.
35	**Acknowledge User Defined Input 2**—When User-Defined Input 2 has been configured to require a SCADA acknowledgement it will be held active after the physical input state has gone inactive until this control point is received.
36	**Acknowledge User Defined Input 3**—When User-Defined Input 3 has been configured to require a SCADA acknowledgement it will be held active after the physical input state has gone inactive until this control point is received.
37	**Enable/Disable Transfer Trip**—When enabled, the local device sends an **Initiate Transfer Trip** command to all non-zero RTU addresses in the Remote Transfer Trip Transmit List table following an **Open and Lockout** state because of a protection or automatic sectionalizing event. When disabled, no condition will result in sending an **Initiate Transfer Trip** command to remote devices. Control point = 0x1F03.
38	**Enable/Disable DIFF**—This command enables or disables the **Disregard First Overcurrent** mode.
39	**Enable Remote Prohibit Restoration from Local**—When enabled, a local **Prohibit Restoration** command (via the front panel or IntelliLink software screen) will place the device in a **Prohibit Restoration** mode and then transmit a **Prohibit Restoration** command to all devices in the Remote Prohibit Restoration Transmit list. Control point = 0x1F04.
40	**Enable Remote Prohibit Restoration from SCADA**—When enabled, the device will enter a **Prohibit Restoration** mode and then transmit a **Prohibit Restoration** command to all devices in the Remote Prohibit Restoration Transmit list if any the following states are active: **Hot Line Tag**, **Frequency Trip**, **Manual Operation**, or the **Prohibit Restoration** state is activated from a SCADA command. Control point = 0x1F05.
41	**Clear Manual Op Any State Switch 1**—When executed, the manual operation on a device is cleared for switch 1 and the device goes into the **Ready** state. The device can be in an **Abnormal** state (i.e. abnormally open or abnormally closed) or in its **Normal** state (normally open or normally closed).
42	**Clear Manual Op Any State Switch 2**—When executed, the manual operation on a device is cleared for switch 2 and the device goes into the **Ready** state. The device can be in an **Abnormal** state (i.e. abnormally open or abnormally closed) or in its **Normal** state (normally open or normally closed).

Table 4. 6802/3 Analog Output Points

Code #	Name—Definition
1	**Application Layer Confirmation Retry Time—**Time (100 to 65,535 ms.) that the switch control will wait for an application layer confirmation to an event response message before resending the request for confirmation.①
2	**Application Layer Confirmation Retry Count—**Number of times (0 to 10) the switch control will send an event response message if a confirmation is not received. This number includes the initial response. The retry count is only in effect when the confirmation process is enabled.
3	**Control Point Select Time—**During a **Select-Before-Operate** procedure, the time (10 to 1000 tenths of a second) allowed to elapse between receiving the **Select** function for a point and receiving the **Operate** function for it. If an **Operate** function is not received within this period, the point is de-selected; another **Select** function is required before the point will operate.
4	**Real-Time Feeder Loading—**Total averaged three-phase feeder loading (10 amperes to maximum source capacity minus 10 amperes), measured at the source breaker. This value is used to determining whether the load can be transferred to another source. Each count equals one ampere.

① Set and read the **Application Layer Confirmation Retry Time** setpoint based on the required range:

Application Layer Confirmation Retry Time Range	Set Analog Output Value	Read Analog Output Value
100 to 32,737 ms.	Group 41 variation 2 (16-bit)	Group 40 variation 2 (16-bit with flag)
32,738 to 65,535 ms.	Group 41 variation 1 (32-bit)	Group 40 variation 1 (32-bit with flag)

Note: Class 0 will always report group 40 variation 2 and will report negative value for 32-bit values. Use group 40 variation 1 to read values between 32,738 to 65,535 ms.

Table 5. 6802/3 Counter Points

Code #	Name—Definition
1	**Operation Count Switch 1**—This is the number of switch operations. The counter is incremented on each **Close** operation. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
2	**Operation Count Switch 2**—This is the number of switch operations. The counter is incremented on each **Close** operation. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
3	**New Coach Generated on Team**—This is the number of coach generations on the team. The counter is incremented on each coach generation. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
4	**Team Communication Problem**—This is the number of communication problems. The counter is incremented on each communication problem. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
5	**Unexpected State Change**—This is the number of unexpected state changes. The counter is incremented on each unexpected state change. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
6	**Rebuilding Coach**—This is the number of **Coach Rebuild** operations. The counter is incremented on each **Coach Rebuild** operation. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
7	**Error Putting Coach on the Task List**—This is the number of errors putting coach on the task list. The counter is incremented on each error. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
8	**Error Putting Communication Entry on Task List**—This is the number of errors putting a communication entry on the task list. The counter is incremented on each error. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
9	**Error Putting Event on the Task List**—This is the number of errors putting an event on the task list. The counter is incremented on each error. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
10	**Error Putting Member on the Task List**—This is the number of errors putting a member on the task list. The counter is incremented on each error. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
11	**Resynchronize Sequence Number**—This is the number of sequence number resynchronizations. The counter is incremented on each **Resynchronization** operation. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
12	**Compact Flash Issue**—This is the number of flash memory issues. The counter is incremented on each flash memory issue. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
13	**Logging Overflow**—This is the number of log overflows. The counter is incremented on each log overflow. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
14	**Disk Problem**—This is the number of disk problems. The counter is incremented on each disk problem. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
15	**Wi-Fi Intrusion Attempt**—This is the number of Wi-Fi intrusion attempts. The counter is incremented on each Wi-Fi intrusion attempt. This is a 32-bit counter and will overflow back to zero at 4,294,967,295.
16	**IntelliLink Intrusion Attempt**—This is the number of IntelliLink intrusion attempts that failed three times, after which all users are locked out for 15 minutes.

Table 6. 6801/2/3 Group 0 Objects

Variation	Variation Name	Definition
204	Device location longitude	This is the longitude of the control provided by GPS in decimal degrees based on the WGS84 reference. A value of zero is returned when a GPS signal is not available, the Fix Quality is in the **Invalid** state, or no GPS module is installed. When the GPS module is installed the present position is always returned, even when **GPS** mode is not selected for the **Time Source Synchronization** setpoint on the *Setup>General>Time* screen.
205	Device location latitude	This is the latitude of the control provided by GPS in decimal degrees based on the WGS84 reference. A value of zero is returned when a GPS signal is not available, the Fix Quality is in the **Invalid** state, or no GPS module is installed. When the GPS module is installed the present position is always returned, even when **GPS** mode is not selected for the **Time Source Synchronization** setpoint on the *Setup>General>Time* screen.
242	Device manufacturer's software version	The S&C Electric Company implementation will return a string containing the MCU Application and MCU EOS. The following is an example of the string that will be returned: "003.003.004.003 060.001.021.043," representing MCU Application 3.3.4.3, MCU EOS 60.1.21.43.
248	Device serial number	The S&C Electric Company implementation will return a string containing the 6800 Series serial number. The following is an example of the string that will be returned: "6802-0017-000001 62-0017001," representing a 6802 Automatic Switch Control serial number.

DNP Implementation

This implementation of DNP and this section of documentation conform to the document "DNP V3.00 Subset Definitions, Version 2.00," available from the DNP Users Group.

Table 7 describes the compatibility of S&C's implementation of DNP with other devices.

Table 7. Device Profile Description

```
                          DNP 3
                  DEVICE PROFILE DOCUMENT
```

```
            Vendor Name:  S&C Electric Company
```

```
        Device Name:  6800 Series Automatic Switch Control
```

Highest DNP Level Supported: For Requests - Level 2 For Responses - Level 2	Device Function: _ _ _ Master X Slave

```
Notable objects, functions, and/or qualifiers supported in addition to the Highest
   DNP Levels Supported (the complete list is described in the attached table):
                      8-Bit Unsigned Integers

_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
_ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
```

Maximum Data Link Frame Size (bytes) Transmitted - 292 Received - 292	Max Application Fragment Size (bytes) Transmitted - 249 Received - 249
Maximum Data link Re-tries: X None _ _ Fixed at _ _ _ _ _ _ _ _ _ _ Configurable, range 1 to 25	Maximum Application Layer Re-tries: _ _ None _ _ Fixed at _ _ _ _ _ _ _ _ X Configurable, range 1 to 25 and infinite

```
                Requires Data Link Layer Confirmation:
                            X    Never
                            _ _ Always
               _ _ Sometimes      If "Sometimes," when?
               _ _ Configurable   If "Configurable," how?
```

Table 7. Device Profile Description—Continued

```
            Requires Application Layer Confirmation:
                        _ _ Never
                   _ _ Always (not recommended)
             _ _ When reporting Event Data (Slave devices only)
         _ _ When sending multi-fragment responses (Slave devices only)
                   _ _ Sometimes    If "Sometimes," when?
                    X   Configurable  If "Configurable," how?
```

```
                  Timeouts while waiting for:
   Data Link Confirm          X   None   _ _ Fixed  _ _ Variable  _ _ Config
   Complete Appl. Fragment  X   None   _ _ Fixed  _ _ Variable  _ _ Config
   Application Confirm        _ _ None   _ _ Fixed  _ _ Variable  X   Config
   Complete Appl. Response  X   None   _ _ Fixed  _ _ Variable  _ _ Config
Others _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
           _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ _
           Attach explanation if "Variable" or "Configurable" was checked
                      (see Note 1 for explanation)
```

```
                  Sends/Executes Control Operations:
   Write Binary Outputs    X   Never  _ _ Always  _ _ Sometimes  _ _ Config
   Select/Operate          _ _ Never  _ _ Always  X   Sometimes  _ _ Config
   Direct Operate          _ _ Never  _ _ Always  X   Sometimes  _ _ Config
   Direct Operate - NO ACK _ _ Never  _ _ Always  X   Sometimes  _ _ Config

   Count > 1               X   Never  _ _ Always  _ _ Sometimes  _ _ Config
   Pulse On                _ _ Never  _ _ Always  X   Sometimes  _ _ Config
   Pulse Off               X   Never  _ _ Always  _ _ Sometimes  _ _ Config
   Latch On                _ _ Never  _ _ Always  X   Sometimes  _ _ Config
   Latch Off               _ _ Never  _ _ Always  X   Sometimes  _ _ Config

   Queue                   X   Never  _ _ Always  _ _ Sometimes  _ _ Config
   Clear Queue             X   Never  _ _ Always  _ _ Sometimes  _ _ Config

        Attach explanation if "Sometimes" or "Configurable" was checked
                      (see Note 2 for explanation)
```

Table 7. Device Profile Description—Continued

FILL OUT THE FOLLOWING ITEM FOR MASTER DEVICES ONLY:	
Master Expects Binary Input Change Events: _ _ Either time-tagged or non-time-tagged for a single event _ _ Both time-tagged and non-time-tagged for a single event _ _ Configurable (attach explanation)	
FILL OUT THE FOLLOWING ITEMS FOR SLAVE DEVICES ONLY:	
Reports Binary Input Change Events when no specific variation requested: _ _ Never _ _ Only time-tagged X Only non-time-tagged _ _ Configurable to send both	Reports time-tagged Binary Input Change Events when no specific variation requested: _ _ Never X Binary Input Change with Time _ _ Bin In Change Relative Time _ _ Configurable (explain)
Sends Unsolicited Responses: _ _ Never X Configurable (explain) _ _ Only certain objects _ _ Sometimes (explain) _ _ Enable/Disable Unsolicited Function codes supported (see Note 3)	Sends Static Data in Unsolicited Responses: _ _ Never _ _ When Device Restarts X When Status Flags Change No other options are permitted. (see Note 3)
Default Counter Object/Variation: _ _ No Counters Reported _ _ Configurable (explain) X Default Object - 20 Default Variation - 5 _ _ Point-by-point list attached	Counters Roll Over at: _ _ No Counters Reported _ _ Configurable (explain) _ _ Bits X _ 32 Bits _ _ Other Value _ _ _ _ _ _ _ _ _ _ _ _ Point-by-point list attached
Sends Multi-Fragment Responses (Slave Only): X Yes _ _ No	

Note 1: Timeouts While Waiting for Confirmations

For an unsolicited response when an application layer response confirmation is requested, the switch control waits before sending another response/confirmation attempt (if the retry number has not been reached) or stopping the **Confirmation** process.

Set the **Time Delay Between Retries** setting with the setup software or via SCADA. See S&C Instruction Sheet 1045-530, "6800 Series Automatic Switch Controls: *Setup*" for more information.

Note 2: Control Operations Executed

For all **Binary Output Relay (g12)** operations and **Analog Output (g41)** operations, the supported application layer function codess are:

- **Select (3)**
- **Operate (4)**
- **Direct Operate (5)**
- **Direct Operate No Ack (6)**

The control codes supported for **Binary Output Command** operations are:

Control Code	TCC Field	Op Type Field
0x01	NUL	PULSE_ON
0x03	NUL	LATCH_ON
0x04	NUL	LATCH_OFF
0x41	CLOSE	PULSE_ON
0x81	TRIP	PULSE_ON

For **Binary Output Command** operations, set the **Count** value to "1," **Queue** and **Clear** fields to "0," and **On-Time** and **Off-Time** fields to any valid values. The control will ignore the **On-Time** and **Off-Time** fields in the request. For the **Select** and **Operate** command sequence, the value of the **On-Time** and **Off-Time** fields must match between **Select** and **Operate** requests otherwise the command will not be executed.

For a **Binary Output Command** requests with the **Clear** field set to "1," the control will return a status code 4 [NOT_SUPPORTED] in its response and the operation will not be executed.

For more details on **Binary Output Command** operations, see the "Control Relay Output Block" section in the Object library section of "IEEE std 1815TM-2012."

Note 3: Unsolicited Responses

The switch control returns unsolicited responses to the configured master station address when a change occurs in any mapped status point or when the device is restarted. The data returned is Object 2, Variation 2 ("Binary Input Change with Time").

Enable and disable unsolicited responses from the setup software or via SCADA (Function Code 20 to enable, Function Code 21 to disable).

DNP Implementation

Table 8 describes which objects and requests this implementation accepts and which responses are returned. **Object**, **Variation**, and **Qualifier** codes in the request must exactly match what is expected; otherwise, the switch control flags an error. All application layer responses use the standard response function code 129.

Table 8. Implementation					
OBJECT			REQUEST		RESPONSE
Obj	Var	Description	Func Code (dec)	Qualifier Codes (hex)	Default Var. (hex)
1	0	Binary Input - All Variations	1	06	
1	1	Binary Input			00
2	0	Binary Input Change - All Variations	1	06,07,08	
2	1	Binary Input Change without Time	1	06,07,08	17
2	2	Binary Input Change with Time (see Note 4)	1	06,07,08	17
2	3	Binary Input Change with Relative Time (object parsed but no data to return)	1	06,07,08	17
10	0	Binary Output - All Variations	1	06	
10	2	Binary Output Status (See Note 5)		00,01,06	00,01
12	1	Control Relay Output Block	3,4, 5,6	17,28	echo of request
20	0	Binary Counter - All Variations	1,7, 8,9, 10	06	
20	5	32-Bit Binary Counter without Flag			00
21	0	Frozen Counter - All Variations	1	06	

TABLE CONTINUED ▶

DNP Implementation

Table 8. Implementation—Continued

Obj	Var	Description	Func Code (dec)	Qualifier Codes (hex)	Default Var. (hex)
		OBJECT	REQUEST		RESPONSE
21	9	32-Bit Frozen Counter without Flag			00
22	0	Counter Change Event - All Variations	1	06,07,08	
22	1	Counter Event - 32-bit with flag (Note 4)		06.07.08	17
22	5	Counter Event - 32-bit		06.07.08	17
30	0	Analog Input - All Variations	1	06	
30	4	16-Bit Analog Input without Flag			00
32	0	Analog Change Event - All Variations (object parsed but no data to return)	1	06,07,08	
32	2	Analog Input Event - 16-bit without time (Note 4)		06.07.08	17
32	4	Analog Input event - 16-bit with time		06.07.08	17
40	0	Analog Output Status - All Variations	1	06	
40	2	16-Bit Analog Output Status			00
41	2	16-Bit Analog Output Block	3,4, 5,6	17,28	echo of request
50	1	Time and Date - Absolute Time	2	07 limited quantity = 1	IINs only
50	3	Time and Date - Absolute time at last recorded time	2	07 limited quantity = 1	IINs only

TABLE CONTINUED ▶

Table 8. Implementation—Continued

OBJECT			REQUEST		RESPONSE
Obj	Var	Description	Func Code (dec)	Qualifier Codes (hex)	Default Var. (hex)
60	1	Class 0 Data	1	06	
60	2	Class 1 Data	1	06,07,08	
60	3	Class 2 Data	1	06,07,08	
60	4	Class 3 Data	1	06,07,08	
80	1	Internal Indications	2	00 index=7	IINs only
102	0	8-Bit Unsigned Integer (see Note 6)	1	04	04
102	1	8-Bit Unsigned Integer (see Note 6)	1,2	03,04,05	04
		No Object	13		
		No Object	23		
		No Object	24		

Note 4: Change Event Objects

This is the default object returned in the unsolicited report by exception (if enabled) and the default object for any event data request.

Note 5: Binary Output Status

In a response to a **Binary Output Status** request, the switch control returns a status byte for each control point available. In this implementation of the **Binary Output Status** object, only the **Online** bit is used. All other bits, including the **State** bit, should be ignored.

The state of all digital points (controlled and not controlled) can be inspected by using the **Binary Input** object.

Note 6: Polling Class

DNP points are assigned to polling classes. S&C Automatic Switch Controls implement Class 0 for static data, and Classes 1, 2, and 3 for event data. The Class 0 poll response contains all DNP points that have been assigned to Classes 0, 1, 2, or 3 and their most recent static value. The Class 1, 2, or 3 polls return event data, or any DNP point whose value has changed since the last event response message was transmitted. Polling frequency is an aspect of the user's SCADA system and is user selectable.

DNP point mapping is user configurable, and all points do not need to be mapped. DNP points can be customer assigned to any of the DNP Event Classes 1, 2, and 3.