Overview

This document describes the Functional Profile of a Outdoor Luminair Controller Object.

Example Usage

This Profile is mainly used for Street Lighting with Powerline.
Object Details

**Figure 2** Object Details
**Node Object**

If the OLC Profile is implemented in combination with the Node Object the cpLocationGeo is mandatory.

Geographic Location:  GPS location where the physical device is located. This configuration property is mandatory if the OLC profile is implemented.

---

**Figure 3** Object Details
<table>
<thead>
<tr>
<th>NV # (M/O)*</th>
<th>Variable Name</th>
<th>SNVT Name</th>
<th>SNVT Index</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (M)</td>
<td>nviLampValue</td>
<td>SNVT_switch</td>
<td>95</td>
<td>The desired state (on/off) and value (%) of the lamp bulb</td>
</tr>
<tr>
<td>2 (M)</td>
<td>nviRunHours</td>
<td>SNVT_time_hour_p</td>
<td>198</td>
<td>The method used to reset or initialize the run-hours count</td>
</tr>
<tr>
<td>3 (M)</td>
<td>nviEnergy</td>
<td>SNVT_elec_kwh_l</td>
<td>146</td>
<td>The method used to reset or initialize the electricity-consumption total</td>
</tr>
<tr>
<td>4(M)</td>
<td>nvoLampValueFb</td>
<td>SNVT_switch</td>
<td>95</td>
<td>The actual state (on/off) and value (%) of the lamp bulb</td>
</tr>
<tr>
<td>5(M)</td>
<td>nvoOLCStatus</td>
<td>SNVT_lamp_status</td>
<td>199</td>
<td>The data related to the internal status conditions of the lamp controller</td>
</tr>
<tr>
<td>6(M)</td>
<td>nvoEnvironment</td>
<td>SNVT_environment</td>
<td>200</td>
<td>The measured values from in and around the environment.</td>
</tr>
</tbody>
</table>

* M = mandatory, O = optional
Table 2 SCPT Details

<table>
<thead>
<tr>
<th>Man. Opt. *</th>
<th>SCPT Name NV Name Type or SNVT</th>
<th>SCPT Index</th>
<th>Associated NVs **</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>SCPTminSendTime cpMinSendTime SNVT_time_sec (107)</td>
<td>52</td>
<td>Entire Object</td>
<td>Minimum period of time between consecutive transmissions of the current value</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTmaxSendTime cpMaxSendTime SNVT_time_sec (107)</td>
<td>49</td>
<td>Entire Object</td>
<td>Maximum period of time that expires before the Object will automatically update NVs</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTbkupSchedule cpBkupSchedule Structure</td>
<td>344</td>
<td>Entire Object</td>
<td>The On/Off schedule to be used as a default</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTlampPower cpLampPower SNVT_power</td>
<td>346</td>
<td>Entire Object</td>
<td>The maximum wattage of the installed bulbs.</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTenableStatusMsg cpEnableStatusMsg structure</td>
<td>348</td>
<td>nvoOLCStatus (NV5)</td>
<td>Enable-Status Mask</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTdeviceOutSelection cpDeviceOutSelection enumeration</td>
<td>347</td>
<td>Entire Object</td>
<td>Device Output Selection</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTminSetpoint cpDimLowLevelLight SNVT_lev_percent</td>
<td>53</td>
<td>Entire Object</td>
<td>Dimmable Minimum</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTtrampUpTm cpWarmUpTime SNVT_time_sec</td>
<td>160</td>
<td>Entire Object</td>
<td>Minimum warm-up time</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTmaxLevelVolt cpMaxLevelVolt SNVT_volt</td>
<td>349</td>
<td>Entire Object</td>
<td>Preceivable-Maximum Control</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTOLCLimits cpOLCLimits structure</td>
<td>345</td>
<td>nvoOLCStatus (NV5)</td>
<td>OLC Limits Setpoints</td>
</tr>
<tr>
<td>Man</td>
<td>SCPTpwrUpState cpPwrUpState SNVT_switch</td>
<td>73</td>
<td>Entire Object</td>
<td>OLC Powerup state</td>
</tr>
</tbody>
</table>

* Man = mandatory, Opt = optional

** List of NVs to which this configuration property applies.
Mandatory Network Variables

Lamp Value Input

```plaintext
network input sd_string("@p|1") SNVT_switch nviLampValue;
```

This input will drive the desired output of the lamp controller; the output being relays, a 1-to-10V control line, a foreign lighting-control connection, or direct light output.

**Valid Range**

The valid Range of SNVT_switch.

Values of 0 to 100% represent 0 to 100% light output.

**Default Value**

None specified.

**Configuration Considerations**

None specified.

Run-Hours Change Input

```plaintext
network input sd_string("@p|2") SNVT_time_hour_p nviRunHours;
```

This input will overwrite the cumulative run-hours counter with a new value to either clear or initialize the internal value; enabling correct fixture-life computations in cases where the lamp controller hardware has been replaced.

**Valid Range**

The valid Range of SNVT_time_hour_p.

**Default Value**

None specified.
**Configuration Considerations**
None specified.

---

**Electricity-Used Change Input**

```plaintext
network input sd_string("@p|3") SNVT_elec_kwh_l nviEnergy;
```

This input will overwrite the cumulative energy-consumption counter with a new value to either clear or initialize the internal value; enabling correct energy-consumption computations in cases where the lamp controller hardware has been replaced.

**Valid Range**
The valid Range of SNVT_elec_kwh_l.

**Default Value**
None specified.

**Configuration Considerations**
None specified.

---

**Lamp Feedback Value Output**

```plaintext
network output sd_string("@p|4") bind_info(any) SNVT_switch nvoLampValueFb;
```

This output returns the actual output value of the lamp controller. In case of fixture or lamp problems/limitations, this value can differ from the desired value provided to nviLampValue.

**Valid Range**
The valid range of SNVT_switch.

**Default Value**
None specified.
Configuration Considerations
None specified.

When Transmitted
The output variable is transmitted:
· Upon node reset, after obtaining valid data.
· When the ‘state’ has changed.
· Regularly at the interval defined by the configuration variable cpMaxSendTime.

Default Service Type
None specified.

Lamp-Controller Status Output

network output sd_string("@p5") bind_info(any) SNVT_lamp_status nvoOLCStatus;

This output returns the data related to the internal status conditions of the lamp controller.

Valid Range
The valid range of SNVT_lamp_status.

Default Value
None specified.

Configuration Considerations
None specified

When Transmitted
The output variable is transmitted:
· Upon node reset, after obtaining valid data.
· When the ‘state’ has changed.
· Regularly at the interval defined by the configuration variable cpMaxSendTime.

**Default Service Type**
None specified.

---

**OLC Environment Output**

```c
network output sd_string("@p|6") bind_info(any)
SNVT_environment nvoEnvironment;
```

This output provides the measured values from in and around the environment of the fixture, including mains/lamp voltages, mains/lamp currents, lamp temperature, consumed power, and power factor.

**Valid Range**
The valid range of SNVT_environment.

**Default Value**
None specified.

**Configuration Considerations**
None specified

**When Transmitted**
The output variable is transmitted:
· Upon node reset, after obtaining valid data.
· When the ‘state’ has changed.
· Regularly at the interval defined by the configuration variable cpMaxSendTime.

**Default Service Type**
None specified.
Configuration Properties

**Send Heartbeat (Mandatory)**

```plaintext
network input config sd_string("&l,p,0\x80,49")
SNVT_time_sec nciMaxSendTime;
```

This input configuration property sets the maximum period of time that can expire before the Object will automatically update the following network variables:

- nvoLampValueFb
- nvoOLCStatus
- nvoEnvironment

Please consider the low bandwidth if the application is based on Powerline.

**Valid Range**

The valid range of SNVT_time_sec.

**Default Value**

The default value is 0.0 (no automatic update).

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTmaxSendTime (49)

---

**Maximum send time (Mandatory)**

```plaintext
network input config sd_string("&l,p,0\x80,49")
SNVT_time_sec nciMaxSendTime;
```

This input configuration property sets the maximum period of time that can expire before the Object will automatically update the following network variables:

- nvoLampValueFb
nvoOLCStatus
nvoEnvironment

Please consider the low bandwidth if the application is based on Powerline.

**Valid Range**
The valid range of SNVT_time_sec.

**Default Value**
The default value is 0.0 (no automatic update).

**Configuration Requirements/Restrictions**
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**
SCPTmaxSendTime (49)

---

**Backup Schedule (Mandatory)**

```
#include <sd_string>

struct cpBkupSchedule;
```

This configuration property defines a default on/off schedule for cases when the lamp controller detects that communication with the segment controller is lost. If the START and the END time are the same, then there is no backup schedule defined.

**Valid Range**
SCPTbkupSchedule

**Default Value**

**Configuration Requirements/Restrictions**
This CP has no modification restrictions (no_restrictions). It can be modified at any time.
**SCPT Reference**

SCPTbkupSchedule (344)

---

**Lamp Power (Mandatory)**

network input config sd_string("&1,p,0\x80,346")
SNVT_power cpLampPower;

This configuration defines the maximum wattage of the installed bulbs.

**Valid Range**

SNVT_power

**Default Value**

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTlampPower (346)

---

**Enable-Status Mask (Mandatory)**

network input config sd_string("&2,5,0\x80,348")
Structure cpEnableStatusMsg;

This configuration property setting determines which status information is conveyed by nvoOLCStatus. SET ("1") means that the corresponding value will be sent. CLEARED ("0") means that the corresponding value will not be sent.

Apply to nvoOLCStatus (NV5)

**Valid Range**

None specified
Default Value
None specified

Configuration Requirements/Restrictions
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference
SCPTenableStatusMsg (348)

Device Output Selection (Mandatory)

network input config sd_string("&1,p,0\x80,347")
ENUM cpDeviceOutSelection;

This configuration property sets the hardware-output type, if the lamp controller is capable of more than one type of output:
OLC_DEFAULT = Standard (default)
OLC_RELAY = Relay Actuation
OLC_ECO_MODE = ECO Mode
OLC_1_TO_10 = 1-to-10 Volt
OLC_DALI = DALI

Valid Range
SCPTdeviceOutSelection

Default Value
OLC_DEFAULT

Configuration Requirements/Restrictions
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

SCPT Reference
SCPTdeviceOutSelection (347)
Dimmable Minimum (Mandatory)

network input config sd_string("&1, p, 0\x80, 53")
SNVT_lev_percent cpDimLowLevelLight;

This configuration property represents the minimum light-level setting possible for the lamp and equates that to the 1-10V scale. For example: if the lamp can be dimmed only to a minimum of 50% (to still maintain illumination), then a cpDimLowLevelLight value of 50% would equate to 1V on the 1-to-10 Volt output.

The default value of 0% de-actives the configuration property.

Valid Range
SNVT_lev_percent

Default Value
0%

Configuration Requirements/Restrictions
This CP has no modification restrictions (no_restrictions). It can be modified at any time.
**SCPT Reference**

SCPTminSetpoint (53)

---

**Minimum warm-up time (Mandatory)**

```c
network input config sd_string("&1,p,0\x80,160")
SVNT_time_sec cpWarmUpTime;
```

This configuration property sets the minimum time that is required of a lamp to remain at 100% on (e.g., 10 Volts) before the dimming command can be executed.

**Valid Range**

SNVT_time_sec

**Default Value**

NULL seconds

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

---

**SCPT Reference**

SCPTrampUpTm (160)

---

**Preceivable-Maximum Control (Mandatory)**

```c
network input config sd_string("&1,p,0\x80,349")
SNVT_volt cpMaxLevelVolt;
```

This configuration property sets the maximum voltage (of the 1-10V output) needed to achieve 100% lamp-light output. In many cases, 100% is reached before the 10V-limit is reached.

**Valid Range**

1 – 10 Volt
**Default Value**
10 Volt

**Configuration Requirements/Restrictions**
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**
SCPTmaxLevelVolt (349)

---

**OLC Limits Setpoints (Mandatory)**

```c
network input config sd_string("&2,5,0\x80,345")
Structure cpOLCLimits;
```

This configuration property sets the limits for nvoOLCStatus.
Applies to nvoOLCStatus (NV5)

**Valid Range**
SCPTOLCLimits

**Default Value**
None specified

**Configuration Requirements/Restrictions**
This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**
SCPTOLCLimits (345)
OLC Powerup state (Mandatory)

network input config sd_string("\&1,p,0\x80,73")
SNVT_switch cpPwrUpState;

This configuration property is be used to define the default output value on power up.

**Valid Range**

SNVT_switch

**Default Value**

100.0 1

**Configuration Requirements/Restrictions**

This CP has no modification restrictions (no_restrictions). It can be modified at any time.

**SCPT Reference**

SCPTpwrUpState (73)

---

**Key for Unresolved References**

`p` is this Object’s index relative to the node sd_string declaration, when implemented.

**Data Transfer**

None specified.

**Power-up State**

There is no immediate network action on Power-up State.
Boundary and Error Conditions

None specified.

Additional Considerations

None specified.