Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.6.1-online.6) on 2024-10-14 12:17:25.700 +0200.*

The Capability List is a consolidated list of TALQ features which are implemented in a product.

The tool has succesfully performed *64 tests*.

Product details

Product Name	Smartsky
Company	Lotec
Type	GATEWAY
Notes	
Generated on	2024-10-14 12:17:25.700 +0200
Supported profiles	• Lighting • Lighting Asset Management
API version certified:	2.6.1
Certification performed by app version:	2.6.1-online.6

Functional tests

The Functional Tests help customers understand the capabilities of a TALQ-certified product. All functional test cases are presented to provide comprehensive context, and successful completion of each test is indicated with a tick mark. Each Functional Test is related to a set of required TALQ

technical test cases.

Configuring

5 of 11

Support light point control features ✔

The Gateway successfully connects to a CMS and transmits its capabilities for light point control features and services. **CFG-1**

Support cabinet control lighting features

The Gateway successfully connects to a CMS and transmits its capabilities for cabinet control lighting features and services. **CFG-2**

Support sensor-based light point control features

The Gateway successfully connects to a CMS and transmits its capabilities for sensor-based light point control features and services. **CFG-3**

Discovery of the network of devices ✔

The Gateway transmits all its devices to the CMS together with their configuration and asset information. **CFG-4**

Initialize light point electrical alarm thresholds ✔

The Gateway is able to receive the light point electrical alarm thresholds from the CMS, including Lamp Voltage Too High/Low, Lamp Current Too High/Low, Active Power Too High/Low and Power Factor Too Low **CFG-5**

Initialize and change the cabinet control alarm thresholds

The Gateway is able to receive the cabinet control electrical alarm thresholds from the CMS, including < to be defined > **CFG-6**

Initialize and change the light point parameters ✔

The Gateway is able to receive the light point parameters from the CMS. **CFG-7**

Initialize and change a group of luminaires ✔

The Gateway is able to handle a command from the CMS to set or change a group of light points to assign them a control program. **CFG-8**

Change the sampling frequency for measurements

The Gateway is able to change the sampling of measurements and properly reflected in the next data log sent to the CMS. **CFG-9**

Change the reporting frequency for measurements

The Gateway is able to change the reporting frequency (how often it sends data logs to the CSM) for measurements. **CFG-10**

Update the firmware of the hardware devices

The Gateway supports data package service and accepts a data package to update firmware on a physical device. **CFG-11**

Monitoring **1 of 11**

Measure and report basic electrical values (Current/Voltage/Active Power/Power Factor)

The Gateways sends "valid values" for electrical values including mains voltage, current, active power and power factor to the CMS using one of the data logging service. **MTG-1**

Measure and report cumulating energy counter

The Gateways sends "valid growing values" for energy counter to the CMS using one of the data logging service. **MTG-2**

Report lamps' number of operating hours

The Gateways sends "valid growing values" for lamp operating hours counter to the CMS using one of the data logging service. **MTG-3**

Report lamps' number of switch-on counter

The Gateways sends "valid growing values" for lamp switch-on counter to the CMS using one of the data logging service. **MTG-4**

Report lamps' number of supply loss counter

The Gateways sends "valid growing values" for supply loss count to the CMS using one of the data logging service. **MTG-5**

Monitor the lamp level feedback when a manual override command is sent ✔

The Gateway receives a manual override command, sends it to the device and can report, using on-demand read as well as a data logger service, that the lamp level feedback is getting close to the command. **MTG-6**

Report temperature

The Gateways sends temperature values to the CMS using one of the data logging service. **MTG-8**

Report presence detection

The Gateways sends presence detection values to the CMS using one of the data logging service. **MTG-9**

Report noise level

The Gateways sends noise level values to the CMS using one of the data logging service. **MTG-10**

Report light level

The Gateways sends light level values to the CMS using one of the data logging service. **MTG-11**

Report firmware updating process

The Gateway is able to report the firmware update events **MTG-12**

Controlling 4 of 7

Manual control over a light point ✔

The Gateway properly receives and handles a manual override command sent by the CMS for one single light point **CTR-1**

Manual control over a group of light points ✔

The Gateway properly receives and handles a manual override command sent by the CMS for a group of light points **CTR-2**

Manual control with a delay ✔

The Gateway properly receives and handles a manual override command that includes a delay, sent by the CMS for one single light point. **CTR-3**

Manual control with a ramp ✔

The Gateway properly receives and handles a manual override command that includes a rampup, sent by the CMS for one single light point. **CTR-4**

Automatic switch light on/off based on photocell value

The Gateway can properly execute a control program that switches the light ON and OFF based on a local photocell value on a single light point. **CTR-5**

Automatic change of light level when presence detected

The Gateway can properly execute a control program that changes the light dimming level based on a local presence sensor on a single light point. **CTR-6**

Automatic change of light level when noise detected

The Gateway can properly execute a control program that changes the light dimming level based on a local noise sensor on a single light point. **CTR-7**

Alarming **3 of 5**

Report lighting alarms to the CMS ✔

The Gateway can produce lighting alarms and send them to the CMS using one of the data logger services. **ALR-1**

Report electrical alarms to the CMS

The Gateway can produce electrical alarms and send them to the CMS using one of the data logger services. **ALR-2**

Report invalid program and calendar ✔

The Gateway can produce invalid calendar and control program alarms and send them to the CMS using one of the data logger services. **ALR-3**

Report activity for sensor based lighting

The Gateway can send an event in case of activity detected and send them to the CMS using one of the data logger services. **ALR-4**

Request the status of the alarm ✔

The Gateway can report the status of the alarms as a response to a request from the CMS **ALR-5**

Programming **6 of 9**

Fix time switching+dimming control program that applies to all days in the year ✔

The Gateway can receive and execute a control program that switches and dims a light point at fix time all days in the year. **PRG-1**

Astro-clock switching + fix time dimming control program that applies to all days in the year ✔

The Gateway can receive and execute a control program that switches a light point at sunrise/sunset +/- few minutes and dim it during an astro-clock active period, all days in the year. **PRG-2**

Photocell switching + fix time dimming control program that applies to all days in the year

The Gateway can receive and execute a control program that switches a light point when photocell indicates darkness and dim it during the photocell active period, all days in the year. **PRG-3**

Photocell and astro-clock switching + fix time dimming control program that applies to all days in the year

The Gateway can receive and execute a control program that switches a light point when photocell indicates darkness or at sunrise/sunset +:- few minutes (the earlier for switch ON/OFF) and dim it during the photocell active period, all days in the year. **PRG-4**

Part night switching program ✔

The Gateway can receive and execute a control program that switches a light point OFF at fixed time in the middle of the night. **PRG-5**

Support exceptional periods (e.g., Sept 10th to Oct 16th) ✔

The Gateway can receive and execute a calendar that has a default rule for all days in the year and another higher priority calendar that applies from DAY 1 to DAY 2. **PRG-6**

Support exceptional week days (e.g., every Saturday and Sunday) ✔

The Gateway can receive and execute a calendar that has a default rule for all days in the year and another higher priority calendar that applies every Saturday night and Sunday night, every day in the year. **PRG-7**

Support exceptional week days (e.g., every Saturday and Sunday) and exceptional periods (e.g., Sept 10th to Oct 16th) ✔

The Gateway can receive and execute a calendar that has a default rule for all days in the year, another higher priority calendar that applies every Saturday night and Sunday night, every day in the year and another higher priority calendar that applies to every saturday between DAY 1 and DAY 2. **PRG-8**

Support dynamic lighting program based on sensor detection

The Gateway can receive and execute a control program that has rule based on presence sensor. **PRG-9**

Capability list

Security

Enabled ✔

Functions

Basic

The Basic function describes the properties related to the physical asset to which the logical device is associated, such as identification (assetId) and location information.

Attributes

#	Attribute	Description
✔	displayName	Display name of the asset.
✔	serial	Serial number of the device.

✔	hwVersion	Hardware revision of the device.
✔	swVersion	Software version installed on the device.
✔	currentTime	Current time of the device defined as local time with time zone designator. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TimeFunction.currentTime instead.]
✔	reboot	Reboot the device. This operational attribute requires the commandConfirmation attribute value to be set to true.
✔	operatingHours	Number of operating hours of the device.

Events

#	Event type	Description
✔	deviceReset	The physical device containing the logical device was reset

Communication

The Communication Function contains attributes related to the communication within the ODN, and between ODN devices and Gateways. Although communication within the ODN is outside the scope of the TALQ Smart City Protocol, this Function enables access to a minimum set of configuration and state information of the ODN communication interface in order to facilitate system management from the CMS.

Attributes

#	Attribute	Description
✔	communicationType	Type of communication technology implemented by the ODN (e.g. power line, wireless).
✔	physicalAddress	Physical address of the device. For example, IEEE MAC address. This attribute can be used to map between logical and physical devices. The format is specific to the ODN implementation.
✔	communicationQuality	Indicator of the quality of the communication with the device. 100% means good quality.
✔	communicationFailure	This attribute is updated by the ODN when the communication function is not operating as expected.

Events

#	Event type	Description
✔	communicationFailure	This event is generated by the ODN when the communication function is not operating as expected

Gateway

The Gateway function includes the necessary attributes to enable the communication between the CMS and the Gateway according to the TALQ Specification.

Attributes

#	Attribute	Description
✔	cmsUri	Base URI for TALQ communication that allows the Gateway to access the CMS. Must be an absolute URI. Other URI's for accessing CMS can be relative to this base.
✔	cmsAddress	CMS UUID address
✔	gatewayUri	Base URI for TALQ communication that allows the CMS to access the Gateway. Must be an absolute URI. Other URI's for accessing Gateway can be relative to this base.
✔	gatewayAddress	Gateway UUID address
✔	retryPeriod	Time duration before the Gateway retransmits a message for which expected response has not been received. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new GatewayFunction.gatewayRetryPeriod instead.]
✔	gatewayRetryPeriod	Time duration before the Gateway retransmits a message for which the expected response has not been received. This attribute can be used by the CMS to avoid requests overload. Although this attribute will be mandatory for Gateway in future MAJOR versions, to keep backward compatibility it is considered optional for the existing profiles.
✔	gatewayNumberOfRetries	Maximum number of retries for a failed request sent by the Gateway for which expected response has not been received. Default value shall be 3. This attribute can be used by the CMS to avoid requests overload. Although this attribute will be mandatory for Gateway in future MAJOR versions, to keep backward compatibility it is considered optional for the existing profiles.
✔	crlUrn	URI where the Gateway can obtain the Certification Revocation List (CRL).

✔	vendor	Vendor identification.

Lamp Actuator

The Lamp Actuator function includes attributes related to lighting control and it represents the smallest unit for control purposes. In practice, however, a Lamp Actuator function can control combinations of several lamps and control gear but all in the same way, as if they are all one individual unit.

Attributes

#	Attribute	Description
✔	lampTypeId	TALQ Address of an existing lampType.
✔	standbyMode	Defines the behavior of the lamp actuator when output level is set to zero. If OFF, light output level is zero with no power to the lamp control gear. If ON, light output level is zero but power is delivered to the lamp control gear (standby mode).
✔	defaultLightState	Sets the default light output for the lamp actuator. This shall be applicable if no other command is active. This attribute shall be set to 100% as default value.
✔	targetLightCommand	Latest command for the lamp actuator.
✔	feedbackLightCommand	This attribute reflects the command in effect and it might deviate from the actualLightState due to propagation time or due to internal ODN specific mechanisms to handle the priority of the requests.
✔	actualLightState	This attribute should reflect the physical state of the light source as much as possible, including factors such as CLO. It may be calculated or measured, depending on the specific ODN implementation, which is outside the scope of this specification.
✔	calendarID	TALQ Address of the calendar controlling this lamp actuator. If this attribute is empty, the behavior shall be determined by the ODN. If the attribute is invalid, the ODN shall trigger a generic invalid address event and the behavior shall be determined by the ODN.

Events

#	Event type	Description
✔	lightStateChange	Light state has changed

✔	invalidCalendar	The lamp actuator function has been allocated a calendar that it cannot implement
✔	invalidProgram	The lamp actuator function has been allocated a control program that it cannot implement
✔	calendarChange	The calendar applicable to the lamp actuator has changed

Lamp Monitor

The Lamp Monitor function enables monitoring of lamp parameters. A Lamp Monitor function should be associated with a specific lamp/control gear combination. Multiple lamp monitor functions may be implemented by a single device.

Attributes

#	Attribute	Description
✔	supplyType	Supply type of the lamp. Accepted values are: AC, DC.
✔	numberOfLamps	Number of lamps being monitored by the lamp monitor function.
✔	switchOnCounter	Cumulative number of ON/OFF cycles since installation of the lamp. The wrap around value is 2e32 - 1.
✔	operatingHours	Number of hours the lamp is on. This is the value used in CLO and may be set by the CMS.
✔	supplyVoltage	RMS supply volts when supplyType is AC, supply voltage (V) when supplyType is DC.
✔	supplyCurrent	RMS supply current (A) when supplyType is AC, supply current (A) when supplyType is DC.
✔	activePower	Active power.
✔	apparentPower	Apparent Power.
✔	powerFactor	Active power/Apparent power.
✔	activeEnergy	Cumulative active energy (since installation or counter reset).
✔	supplyLossCount	Incrementing count of supply losses. The wrap around value is 2e32 - 1.
✔	lampFailure	The lamp is not operating as it is supposed to (e.g. the lamp is broken). This event shall be used to detect a situation where the lamp (or LED module(s)) should be lit, but produce no light. This could be detected by the current flowing or power consumed.
✔	controlGearCommFailure	Indicates failure of the control gear.

✔	supplyVoltageTooHigh	Level of supply voltage is above the highLampVoltageThreshold.
✔	supplyVoltageTooLow	Level of supply voltage is below the lowSupplyVoltageThreshold.

Events

#	Event type	Description
✔	lampFailure	The lamp is not operating as it is supposed to (e.g. the lamp is broken). This event shall be used to detect a situation where the lamp (or LED module(s)) should be lit, but produce no light. This could be detected by the current flowing or power consumed.
✔	controlGearCommFailure	Indicates failure of the control gear
✔	supplyVoltageTooHigh	Level of supply voltage is above the highLampVoltageThreshold.
✔	supplyVoltageTooLow	Level of supply voltage is below the lowSupplyVoltageThreshold.

Light Sensor

A Light Sensor function models the output of light sensor. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	levelHighThreshold	Light level above which a levelTooHigh event is triggered.
✔	levelLowThreshold	Light level below which a levelTooLow event is triggered.
✔	lightLevel	Illuminance level.

Events

#	Event type	Description

Temperature Sensor

The Temperature Sensor function allows a CMS to monitor the temperature in a device and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	temperatureHighThreshold	Threshold above which a temperatureTooHigh event is triggered.
✔	temperature	Output temperature.
✔	applicationType	Application Type of the temperature depending on the use case. E.g.: Solar Battery Charger or Lamp

Events

#	Event type	Description
✔	temperatureTooHigh	Indicates the output temperature is above the temperatureHighThreshold.
✔	temperatureTooLow	Indicates the output temperature is below the temperatureLowThreshold.

Solar Battery Charger*

A solar battery charger is used to charge a battery with solar energy. Typical use cases are energy demanding off-grid applications like solar lighting, solar vehicle charging (cars and bikes), public transit information, traffic control, public security (CCTV) and many more.

Attributes

#	Attribute	Description
✔	inputVoltage	Measured DC voltage of the charger input (V).
✔	inputCurrent	Measured DC current of the charger input (A).
✔	outputVoltage	Output voltage (V).
✔	outputCurrent	Output current (A).
✔	accumulatedEnergy	Accumulated energy yield since accumulatedSince (Wh).
✔	accumulatedSince	Indicates the date and time at which accumulatedEnergy is reset to zero. The Gateway may change this value with the actual one depending on implementation.
✔	applicationType	Application Type of the solar battery charger depending on the use case. E.g.: Lamp Battery

Events

#	Event type	Description
✔	charging	Indicates whether the battery is being charged.

Battery Management System*

A battery management system is used to monitor the charging and discharging of a battery and protect the battery. Typical use cases are (off-grid) applications like solar lighting, solar vehicle charging (cars and bikes), public transit information, traffic control, public security (CCTV) and many more, where the battery is charged and discharged on a regular basis.

Attributes

#	Attribute	Description
✔	batteryChemistry	Attribute to define the battery chemistry. (e.g.: Lead Acid, Lithium-Iron-Phosphate (LiFePO4), Nickel-Metal-Hydrid (NiMH), Lithium-Titanate-Oxide (LTO), ...)
✔	nominalVoltage	Attribute to set the nominal voltage of the battery in V (at room temperature). This can be used to calculate the capacity and to configure the BMS.
✔	nominalCapacity	Attribute to set the nominal capacity of the battery in Ah (at room temperature).
✔	batteryVoltage	Measurement of the battery voltage in V
✔	batteryCurrent	Measurement of the battery current in A. This value can be negative due to polarity.
✔	batteryLevel	Percentage
✔	temperature	Temperature at the battery in C. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperature with applicationType=Battery instead.]
✔	applicationType	Application Type of the battery management system depending on the use case. E.g.: Lamp Battery

Events

#	Event type	Description
✔	batteryFull	Indicates that the battery is full.
✔	batteryEmpty	Indicates that the battery is empty.

Location Sensor*

The Location Sensor Function is used to indicate that an object has changed position attributes configurable by the CMS or based on internal setup of the vendor. For example, a specific location

(latitude, longitude) of a device could be defined by the vendor. If the device is equipped with a GPS, it could send a specific event indicating that its position is different to the one defined by the CMS. We might also want to let the configuration to the vendor itself and simply define events notifying the CMS that the default configuration has changed. For example, a garbage bin could have its location defined based on a sensor placed on the floor. If the bin is not above this sensor, the vendor will trigger an event. In this last case, the CMS does not need to configure anything.

Attributes

#	Attribute	Description
✔	location	Location of the device
✔	locationChanged	Triggered when the difference between location and expectedLocation is above locationChangedThreshold

Events

#	Event type	Description
✔	locationChanged	Triggered when the difference between location and expectedLocation is above locationChangedThreshold

Time*

The Time function includes attributes related to generic control and it represents the smallest unit for control purposes.

Attributes

#	Attribute	Description
✔	timeZone	Time zone of the device. Time zone may be expressed in two formats. where is a time zone as defined in the zone.tab of the IANA timezone database [IANA]; and stdoffset[dst[offset][,start[/time],end[/time]]] as defined by the Open Group for posix systems [POSIX].
✔	currentTime	Current time of the device defined as local time with time zone designator.

Events

#	Event type	Description

Luminaire Asset

This entity contains the managed and tracked attributes of a specific Luminaire, excluding the concept of Controller and Driver.

Attributes

#	Attribute	Description
✔	luminaireTypeAddress	Address of the Luminaire Type
✔	bracketTypeAddress	Address of the Bracket Type
✔	serial	Serial number of the Luminaire
✔	projectID	Name of the Project / Tender
✔	luminousFluxConfiguration	Programmed light output of the luminaire
✔	paintingColor	Painting color of the luminaire expressed as a color system-color value, (e.g: RAL-7035)
✔	virtualPowerOutput	Percentage of nominal power at which the light source should be set when the Command is set to 100%.
✔	installationTimestamp	Installation date and time of luminaire
✔	identification	Luminaire identification. (e.g: as per DiiA/D4i specification part 251 (MB1 extension)).
✔	identificationNumber	Luminaire identification number. (e.g: as per DiiA/D4i specification part 251 (MB1 extension))
✔	mountingOption	Installed direction of the luminaire to the support
✔	warrantyExpirationDate	Warranty expiration date. It can be reset
✔	manufactureYear	Year of manufacture of the luminaire.
✔	manufactureWeek	Week of manufacture of the luminaire.
✔	warrantyYears	Number of years for warranty
✔	applicationType	Application Type of the luminaire asset depending on the use case.

Driver Asset

This entity contains the managed and tracked attributes of a specific driver

Attributes

#	Attribute	Description
✔	driverTypeAddress	Address of the Driver Type
✔	serial	Serial number of the driver
✔	projectID	Name of the Project / Tender

✔	firmwareVersion	Version of the driver hardware firmware
✔	installationTimestamp	Installation date and time of driver
✔	manufactureYear	Year of manufacture of the driver
✔	manufactureWeek	Week of manufacture of the driver.
✔	warrantyExpirationDate	Warranty expiration date. It can be reset
✔	applicationType	Application Type of the driver asset depending on the use case.

Controller Asset

This entity contains the managed and tracked attributes of a specific controller

Attributes

#	Attribute	Description
✔	controllerTypeAddress	Address of the Controller Type
✔	serial	Serial number of the Controller
✔	firmwareVersion	Version of the controller hardware firmware
✔	installationTimestamp	Installation date and time of OLC
✔	registrationTimestamp	Registration date and time of OLC
✔	projectID	Name of the Project / Tender
✔	controllerColor	Painting color of the controller expressed as a color system-color value, (e.g: RAL-7035)
✔	connectionType	Type of the connection to the luminaire
✔	warrantyExpirationDate	Warranty expiration date. It can be reset
✔	manufactureYear	Year of manufacture of the controller
✔	manufactureWeek	Week of manufacture of the controller
✔	applicationType	Application Type of the controller asset depending on the use case.

Services

Configuration Service

The TALQ Configuration Service enables discovery and configuration of devices and services

Options

#	Option	Value	Description
✔	commissioningSupported*		This ODN can support commissioning from the CMS side.
✔	devicesPaginationSupported*		This ODN can support pagination of devices.

Control Service

The Control service describes the mechanisms to operate the actuator functions in order to enable schedule based and override control

Options

#	Option	Value	Description
✔	supportedTypes	• AbsoluteActivePeriod • AstroClockActivePeriod • AstroClockTimeControl* • ccDay*	Control Program and calendar options supported are defined by announcing support for the given modes
✔	maximumPrograms		Maximum number of control programs supported
✔	maxProgramsPerCalendar		Maximum number of control programs per calendar
✔	maxSwitchPointsPerProgram		Maximum number of switching points per control program
✔	maxActivePeriodsPerProgram		Maximum number of active periods per control program

✔	dayOffset	• 1 • 2	Offset of start of day
✔	ccDaySupport	• n • o • O • c • c • u • r • r • e • n • c • e • s	Indicates the ccDay options supported
✔	programSecondsSupported*		Indicates whether the field of seconds is supported in programs.

Events

#	Event Type	Description
✔	invalidCalendar	An invalid calendar has been provided by the CMS to the ODN
✔	invalidProgram	A control program has been provided by the CMS, which cannot be implemented by the ODN

Data Collection Service

The TALQ Data Collection Service is a provision to configure how ODN measurements, status information and events are logged, and when or under what conditions the logged data is transferred to the CMS

Options

#	Option	Value	Description
✔	supportedModes	• VendorRecordingMode • EventRecordingMode • ImmediateReportingMode	Recording and Reporting modes supported

✔	samplingPeriodSupported	Indicates whether the ODN supports periodic sampling for a data logger in periodic recording mode
✔	attributeScopeSupported	Indicates whether the ODN supports filtering attributes by scope (attributeScope); for a data logger in periodic or vendor recording mode.
✔	recordingActivePeriodSupported	Indicates whether the ODN supports active periods for a data logger in recording modes

Events

#	Event Type	Description
✔	invalidLoggerConfig	The CMS has provided a data logger configuration that cannot be implemented by the ODN

On Demand Data Request Service

This service provides the mechanism to access attributes in the logical devices by requesting attribute values from the ODN

Group Management Service

This service provides the mechanisms to define and manage groups

Options

#	Option	Value	Description
✔	maximumNumberOfGroups		Maximum number of groups per Gateway

Asset Management Service

The TALQ Asset Management Service provides a mechanism to transfer the types needed by the asset management functions

Objects

Luminaire Type

The LuminaireType consists of a set of attributes that together characterize, i.e.: are generic for, a given luminaire, excluding the concept of Controller, Driver and Bracket.

Properties

#	Property	Description
✔	address	TALQ address of the Luminaire Type
✔	name	Descriptive name of the LuminaireType
✔	gtin	Global Trade Item Number of luminaire
✔	manufacturerName	Name of manufacturer
✔	productFamily	Product family name of luminaire
✔	model	Product model of luminaire
✔	maximumLuminousFluxOutput	Maximum Light Output luminous flux output
✔	minimumLuminousFluxOutput	Minimum Light Output of the luminaire
✔	lightSourceType	Light source type.
✔	lightDistributionType	Enumeration of possible light distribution type, using the Zhaga D4i enumeration. Please refer to ZD4i standard for more details.
✔	maximumPower	Maximum power that the Luminaire can operate at
✔	powerAtMinimumDimLevel	Power at minimum dim level for the luminaire.
✔	materialEnclosure	Material of enclousure of the body of the luminaire

✔	materialLlightCover	Material of light cover [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new materialLightCover instead.]
✔	materialLightCover	Material of light cover
✔	luminaireEfficacy	Efficacy of the luminaire
✔	warmUpTime	Sets the delay after a Switch ON command during which the lamp actuator shall not perform any dimming command.
✔	maxOperatingHours	Maximum number of operating hours that the lamp is supposed to live with a given specification. This attribute can be used to set the old lamp attributes when the lamp reaches its expected useful life.
✔	lumenDepreciationCurve	Ordered set of entries (cumulative operating hours, correction factor in %) that form a piece wise linear approximation of the lumen depreciation correction factor curve. The first cumulative hours should be 0 and the last correction factor should be 100%. E.g.: 0 h, 80%; 5000 h, 85%; 10000 h, 90%; 15000 h, 95%; 20000 h, 100%.
✔	cloType	Determines where CLO (Constant Lumen Output) is implemented in the lamp control gear or in the ODN (e.g. control device). This CLO profile is needed even when CLO is implemented by the driver in order to obtain the expected lamp power.
✔	lightSourceManufacturerName	Name of light source manufacturer
✔	lightSourceLedEficacy	Efficacy of the LED

Bracket Type

The BracketType consists of a set of attributes that together characterize, i.e: are generic for, a given Bracket.

Properties

#	Property	Description
✔	address	TALQ address of the Bracket Type
✔	name	Descriptive name of the Bracket Type
✔	manufacturerName	Name of manufacturer

✔	productFamily	Product family name of bracket
✔	model	Product model of bracket

Driver Type

The DriverType consists of a set of attributes that together characterize, i.e. are generic for, a given Driver.

Properties

#	Property	Description
✔	address	TALQ address of the Driver Type
✔	name	Descriptive name of the Driver Type
✔	model	Driver model

Controller Type

The ControllerType consists of a set of attributes that together characterize, i.e. are generic for, a given Controller.

Properties

#	Property	Description
✔	address	TALQ address of the Controller Type
✔	name	Descriptive name of the Controller Type
✔	locationPrecision	Accuracy of the location determination
✔	manufacturerName	Name of manufacturer
✔	productFamily	Product family name of the controller
✔	model	Model of the Controller
✔	mechanicalInterfaces	Type of mechanical connection or socket
✔	electricalInterfaces	The control interface protocol type of the connector of the driver.
✔	protocols	Type of digital communication of the controller

Event log data

Event log data contains a single event, with eventType and value, in each single log entry. It also includes information about whether the log denotes the start or end of the event. Furthermore additional information can be added with the info attribute.

Properties

#	Property	Description
✔	eventType	Identifier of event reported
✔	srcAddress	Address of Logical device or function within a logical device which is the source of the event or to which this event applies

Command

A command defines a type of control action that can be applied to a function. Commands can be generated by a manual override action or by a control program.

Properties

#	Property	Description
✔	state	Light state to be applied to the lamp actuator
✔	reason	Indicates the command was triggered by override, sensor or control program
✔	cmsRefId	CMS reference, which can be used for data logging. The cmsRefId in a Command is a free text to be used by the CMS for any purpose, e.g: to differentiate contexts. It is a token that allows the CMS to match client requests to the original notification.
✔	refAddress	Reference to the source of the command, e.g. sensor or control program
✔	start	Time when the control action resulting from command shall start. This attribute is used only with override commands to set a time to start an override action. If not specified, the override command starts immediately.
✔	expiration	Time when the control action resulting from command shall be terminated. This attribute is used only with override commands to set a time to stop an override action. After the expiration of an override command, the system should go back to the state defined by the active control program. If not specified, there is no expiration for the override command.

✔	rampToLevelTime*	The time (in seconds) taken for the value to ramp to the specified level. The change will be finished rampToLevelTime seconds after: the scheduled time if the change comes from a control program; the reception of the request, or the command.start time attribute, if the change comes from an override command, or; the sensor event is raised if the control is sensor-based. If actions related to one command remain to be completed when a subsequent command is received, the subsequent command shall take precedence.
✔	rampFromLevelTime*	The time (in seconds) taken for the value to ramp to the specified level. The change will be finished rampFromLevelTime seconds after: the scheduled time if the change comes from a control program; the reception of the request if the change comes from an override command; expiry of the related command, or; the sensor event is lowered and the hold time subsequently expires if the control is sensor-based. If actions related to one command remain to be completed when a subsequent command is received, the subsequent command shall take precedence.

Group

A group is set of entities that can be addressed by the same group address. Devices and functions within devices can be assigned to a group. A group may also include other groups as members.

Properties

#	Property	Description
✔	address	Group address
✔	members	TALQ Addresses of members of the group

*: The Certification Test Tool is designed to provide a high level of confidence that complementary systems can communicate successfully. As both the protocol and the test tool evolve, all mandatory and other core tests are confirmed by comparison with real-life scenarios (plug-fest or similar). Some tests of optional and more peripheral features may not yet have been confirmed in this way; such features are identified with an asterisk (*).

This Capability List is based on a certification session performed by the TALQ Certification Tool (v2.6.1-online.6) on 2024-10-14 12:17:25.700 +0200.