Certified Capability List

This Capability List is based on a certification session performed by the *TALQ Certification Tool (v2.4.1-update.6) on 2022-08-30 13:18:28.836 +0200.*

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

The tool has succesfully performed *84 tests*.

Product details

Product Name	Luminizer
Company	Luminext B.V.
Type	CMS
URL	https://talq.luminizer.nl/cms
Notes	
Generated on	2022-08-30 13:18:28.836 +0200
Supported profiles	• Environmental Monitoring • Lighting
API version certified:	2.4.1
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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.
✔	assetId	Customer identifier of the asset. If multiple devices have the same assetId it means they belong to the same asset.
✔	serial	Serial number of the device.
✔	hwType	Hardware type of the device.
✔	hwVersion	Hardware revision of the device.
✔	swType	Software type of device. This attribute may be useful if the same hardware supports multiple firmware versions with different functions.
✔	swVersion	Software version installed on the device.
✔	installationDate	The installation date of Physical Device.
✔	location	Latitude, Longitude and Altitude. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new LocationSensorFunction.location instead.]
✔	deviceReset	The physical device containing the logical device was reset.
✔	softwareUpdating	Indicates software updating is in progress.
✔	hardwareUpdated	Indicates that hardware associated with this logical device has been updated.
✔	batteryMode	Device operating in battery mode.
✔	installationMode	Device is being installed.
✔	maintenanceMode	Device is undergoing maintenance, where maintenance may include hardware or software related maintenance actions.
✔	cabinetDoorOpen	Cabinet door is open. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new SegmentMonitor.cabinetDoorOpen instead.]
✔	batteryShutdown	Indicates the device has shut down due to battery discharge.

✔	timeZone	Time zone of the device. Time zone may be expressed in two formats. <timezone> where <timezone> is a time zone as defined in the zone.tab of the IANA timezone database [IANA]; and stdoffset[dst[offset][,start[/time],en d[/time]]] as defined by the Open Group for posix systems [POSIX]. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TimeFunction.timeZone instead.]
✔	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.]
✔	commandConfirmation	Allows the CMS to reboot, factory reset or configuration reset of the device. Before rebooting or resetting the device this attribute has to be true. Default value = false
✔	reboot	Reboot the device. This operational attribute requires the commandConfirmation attribute value to be set to true.
✔	factoryReset	Reset the device to factory settings. This operational attribute requires the commandConfirmation attribute value to be set to true.
✔	configurationReset	Reset the device configuration settings. 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
✔	softwareUpdating	Indicates software updating is in progress
✔	hardwareUpdated	Indicates that hardware associated with this logical device has been updated
✔	batteryMode	Device operating in battery mode
✔	installationMode	Device is being installed
✔	maintenanceMode	Device is undergoing maintenance
✔	cabinetDoorOpen	Cabinet door is open. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new SegmentMonitor.cabinetDoorOpen instead.]
✔	batteryShutdown	Indicates the device has shut down due to battery discharge
✔	locationUpdated	Indicates the location of a device has changed.

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).
✔	logicalAddress	Logical address for communication within the ODN scope (IP address, Short Address, ...).
✔	altLogicalAddress	Additional logical address used for communication within the ODN, for instance, group communication address (not a TALQ group address).
✔	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.
✔	parentAddress	TALQ Address of the parent device, e.g. gateway. It shall point to a specific communication function.
✔	timeToLive	Number of times a packet can be forwarded within the ODN.
✔	repeatingEnabled	Describes whether repeating functionality is enabled at the device.
✔	transmitPower	Transmit power used by the device within the ODN.
✔	numberOfHops	Number of hops between the gateway and the ODN device represented by the device including this function.
✔	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.
✔	applicationType	Application Type of the communication function depending on the use case. E.g.: PL Communication Monitor

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.
✔	crlUrn	URI where the Gateway can obtain the Certification Revocation List (CRL).
✔	vendor	Vendor identification.
✔	currentReleaseId	Release ID of currently deployed release. This is used in the data package service.
✔	newCmsAttached	This attribute is updated if, prior to the current bootstrap, one or more other CMS were already attached. Support for more than one CMS is optional.

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.
✔	outputPort	Identifier of the output port that is controlled by the lamp actuator.
✔	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).

✔ cloEnabled	Determines whether a Constant Light Output (CLO) correction factor is used. CLO is used to compensate for lumen output degradation over the life time of the lamp. If CLO is enabled, lamps are dimmed part of the lampType.
✔ 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.
✔ maintenanceFactorEnabled	Indicates whether maintenance compensation is enabled. A maintenance factor can be added in addition to the CLO correction factor to account effects of maintenance (e.g. cleaning) of the luminaire on the lumen output.
✔ maintenancePeriod	Period (Hours) after which maintenance factor is 100%. The assumption is that the maintenance correction factor vs. time curve is linear.
✔ maintenanceFactor	Initial correction factor applied when the luminaire is cleaned.
✔ lastMaintenanceDate	Date when the luminaire was last cleaned (used to reset the maintenance factor).
✔ 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.
✔ 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.
✔ lightStateChange	Light state has changed.
✔ targetLightCommandChange	The targetLightCommand operational attribute has changed.

✔	programChange	The control program applicable to the lamp actuator has changed (these are the points at which the calendar changes the program).
✔	calendarChange	The calendar applicable to the lamp actuator has changed.
✔	invalidLampType	Indicates that the lamp type referred cannot be applied.
✔	applicationType	Application Type of the lamp actuator depending on the use case. E.g.: Lamp actuator, Cabinet actuator

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
✔	targetLightCommandChange	The targetLightCommand operational attribute has changed
✔	programChange	The control program applicable to the lamp actuator has changed
✔	calendarChange	The calendar applicable to the lamp actuator has changed
✔	invalidLampType	Indicates that the lamp type referred cannot be applied.

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.
✔	lampTypeId	TALQ Address of an existing lamp type. If not set to a valid value, this shall be the lamp type used in the lamp actuator. If this attribute is not supported in the implementation, the lamp monitor shall use the lamp type specified in the corresponding lamp actuator.
✔	monitoringReference	Name of the entity (or physical device) being monitored by this function.

✔ 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.
✔ temperature	Temperature of the device implementing this function. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperature instead.]
✔ 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.
✔ reactivePower	Reactive power.
✔ apparentPower	Apparent Power.
✔ powerFactor	Active power/Apparent power.
✔ powerFactorSense	Phase sense of power factor.
✔ activeEnergy	Cumulative active energy (since installation or counter reset).
✔ supplyLossCount	Incrementing count of supply losses. The wrap around value is 2e32 - 1.
✔ lampPowerTooHigh	Lamp power is greater than expected lamp power + lampPowerTolerance is 2e32 - 1.
✔ lampPowerTooLow	Lamp power is smaller than expected lamp power - lampPowerTolerance
✔ lampVoltageTooHigh	Level of lamp voltage (not supply voltage) is greater than highLampVoltageThreshold.
✔ lampVoltageTooLow	Level of lamp voltage (not supply voltage) is smaller than lowLampVoltageThreshold.
✔ 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.
✔ currentTooHigh	Supply current is above the highCurrentThreshold defined in the lamp type.

✔ currentTooLow	Supply current is below the lowCurrentThreshold defined in the lamp type.
✔ powerFactorTooLow	The power factor is below powerFactorThreshold.
✔ highTemperature	Indicates temperature is above the high threshold [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHigh instead.]
✔ relayFailure	Set in case of internal relay is failing (e.g. it may be stuck in either on or off position). Typically if contactor error isused as well.
✔ absolutLampPowerTooHigh	Indicates the power is above the lampPowerHighThreshold in the lamp type. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new absoluteLampPowerTooHigh instead.]
✔ absolutLampPowerTooLow	Indicates the power is below the lampPowerLowThreshold in the lamp type. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new absoluteLampPowerTooLow instead.]
✔ absoluteLampPowerTooHigh	Indicates the power is above the lampPowerHighThreshold in the lamp type
✔ absoluteLampPowerTooLow	Indicates the power is below the lampPowerLowThreshold in the lamp type
✔ controlGearCommFailure	Indicates failure of the control gear.
✔ cyclingFailure	Indicates the lamp is constantly switching ON and OFF in an unexpected manner. This event shall be used to indicate a lamp which cycles while it should be on. The actual detection algorithm is outside the scope of this specification.
✔ supplyLoss	Indicates loss of mains power.
✔ contactorError	Indicates error in contactor
✔ lampUnexpectedOn	Indicates lamp is unexpectedly on.
✔ leakageDetected	Indicates that an earth leakage fault has been detected.
✔ invalidLampType	Indicates that the lamp type referred cannot be applied.
✔ supplyVoltageTooHigh	Level of supply voltage is above the highLampVoltageThreshold.
✔ supplyVoltageTooLow	Level of supply voltage is below the lowSupplyVoltageThreshold.

✔	highSupplyVoltageThreshold	Supply voltage above which the supplyVoltageTooHigh event is triggered.
✔	lowSupplyVoltageThreshold	Supply voltage below which the supplyVoltageTooLow event is triggered.
✔	applicationType	Application Type of the lamp monitor depending on the use case. E.g.: LED Monitor

Events

#	Event type	Description
✔	lampPowerTooHigh	Lamp power is greater than expected lamp power + lampPowerTolerance
✔	lampPowerTooLow	Lamp power is smaller than expected lamp power - lampPowerTolerance
✔	lampVoltageTooHigh	Level of lamp voltage (not supply voltage) is greater than highLampVoltageThreshold.
✔	lampVoltageTooLow	Level of lamp voltage (not supply voltage) is smaller than lowLampVoltageThreshold.
✔	currentTooHigh	Supply current is above the highCurrentThreshold defined in the lamp type
✔	currentTooLow	Supply current is below the lowCurrentThreshold defined in the lamp type
✔	powerFactorTooLow	The power factor is below powerFactorThreshold
✔	lampFailure	The lamp is not operating as it is supposed to
✔	highTemperature	Indicates temperature is above the high threshold
✔	relayFailure	Set in case of internal relay is failing
✔	absoluteLampPowerTooHigh	Indicates the power is above the lampPowerHighThreshold in the lamp type
✔	absoluteLampPowerTooLow	Indicates the power is below the lampPowerLowThreshold in the lamp type
✔	controlGearCommFailure	Indicates failure of the control gear
✔	cyclingFailure	Indicates the lamp is constantly switching ON and OFF in an unexpected manner
✔	supplyLoss	Indicates loss of mains power
✔	contactorError	Indicates error in contactor
✔	lampUnexpectedOn	Indicates lamp is unexpectedly on
✔	leakageDetected	Indicates that an earth leakage fault has been detected
✔	invalidLampType	Indicates that the lamp type referred cannot be applied.

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

Electrical Meter

The electrical meter function supports electrical metering capabilities including measurements of voltage, current, power, energy, and power factor. This function may be associated with Luminaire Controllers, Cabinet Controllers or electrical meters installed in switch boxes. ODNs may implement both single phase and three phase meters. Typically meters within a control device will be single phase and stand-alone meters. A street side cabinet may have single phase or three phase meters.

Attributes

#	Attribute	Description
✔	totalPower	Sum of the active power consumed on phase 1, 2 and 3, or just the power for a single phase meter.
✔	totalActiveEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✔	totalReactiveEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✔	totalApparentEnergy	Total cumulative kWh measured by the meter since installation date (or counter reset).
✔	frequency	Frequency on the line.
✔	totalPowerFactor	Total active power divided by total apparent power.
✔	totalPowerFactorSense	Sense of power factor (lead or lag).
✔	phase1PowerFactor	Power factor on phase 1.
✔	phase1PowerFactorSense	Sense of power factor (lead or lag).
✔	phase2PowerFactor	Power factor on phase 2.
✔	phase2PowerFactorSense	Sense of power factor (lead or lag).
✔	phase3PowerFactor	Power factor on phase 3.
✔	phase3PowerFactorSense	Sense of power factor (lead or lag).
✔	supplyVoltage	Average between Phase1 RMS Voltage, Phase2 RMS Voltage and Phase3 RMS Voltage, or in the case of a single phase meter just the RMS supply voltage.
✔	phase1Voltage	RMS Voltage between phase 1 and neutral.
✔	phase2Voltage	RMS Voltage between phase 2 and neutral.
✔	phase3Voltage	RMS Voltage between phase 3 and neutral.

✔ voltagePhase1Phase2	RMS Voltage between phase 1 and phase 2.
✔ voltagePhase2Phase3	RMS Voltage between phase 2 and phase 3.
✔ voltagePhase3Phase1	RMS Voltage between phase 3 and phase 1.
✔ totalCurrent	Sum of the RMS currents on phase 1, 2 and 3.
✔ averageCurrent	Average RMS current on phase 1, 2 and 3.
✔ neutralCurrent	RMS current on neutral.
✔ phase1Current	RMS current on phase 1.
✔ phase2Current	RMS current on phase 2.
✔ phase3Current	RMS current on phase 3.
✔ phase1ActivePower	Active Power on phase 1.
✔ phase2ActivePower	Active Power on phase 2.
✔ phase3ActivePower	Active Power on phase 3.
✔ phase1ApparentPower	Apparent Power on phase 1.
✔ phase2ApparentPower	Apparent Power on phase 2.
✔ phase3ApparentPower	Apparent Power on phase 3.
✔ phase1ReactivePower	Reactive Power on phase 1.
✔ phase2ReactivePower	Reactive Power on phase 2.
✔ phase3ReactivePower	Reactive Power on phase 3.
✔ phase1ActiveEnergy	Cumulative active energy on phase 1.
✔ phase2ActiveEnergy	Cumulative active energy on phase 2.
✔ phase3ActiveEnergy	Cumulative active energy on phase 3.
✔ phase1CurrentTHD	Total Harmonic Distortion on current for phase 1.
✔ phase2CurrentTHD	Total Harmonic Distortion on current for phase 2.
✔ phase3CurrentTHD	Total Harmonic Distortion on current for phase 3.
✔ phase1VoltageTHD	Total Harmonic Distortion on voltage for phase 1.
✔ phase2VoltageTHD	Total Harmonic Distortion on voltage for phase 2.
✔ phase3VoltageTHD	Total Harmonic Distortion on voltage for phase 3.
✔ supplyLossCount	Incrementing count of supply losses. In the case of 3 phases the count of losses on all three phases together. The wrap around value is 2e32 - 1.
✔ phase1SupplyLossCount	Incrementing count of supply losses on Phase 1. The wrap around value is 2e32 - 1.
✔ phase2SupplyLossCount	Incrementing count of supply losses on Phase 2. The wrap around value is 2e32 - 1.

✔	phase3SupplyLossCount	Incrementing count of supply losses on Phase 3. The wrap around value is 2e32 - 1.
✔	applicationType	Application Type of the electrical meter depending on the use case. E.g.: Lamp Electrical Meter, Segment Electrical Meter
✔	supplyLoss	Indicates loss of supply (power).

Events

#	Event type	Description
✔	supplyLoss	Indicates loss of supply (power).

Photocell

A Photocell function models the capabilities of a photocell that can be used for lighting control. This function shall be supported by the CMS and optionally by the ODNs (Gateway).

Attributes

#	Attribute	Description
✔	onLevel	Illuminance level at which the photocell switches to on state.
✔	offLevel	Illuminance level at which the photocell switches to off state.
✔	photocellOutput	Output state of the photocell. Possible values are ON (means the illuminance level has fallen below the onLevel) and OFF (means the illuminance level has risen above the offLevel).
✔	photocellOutputOn	The photocell output has changed to ON.
✔	applicationType	Application Type of the photocell depending on the use case. E.g.: Presence detector

Events

#	Event type	Description
✔	photocellOutputOn	The photocell output has changed to ON

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.
✔	levelTooHigh	Indicates the light level is above the levelHighThreshold.
✔	levelTooLow	Indicates the light level is below the levelLowThreshold.
✔	applicationType	Application Type of the light sensor depending on the use case. E.g.: Day light detector

Events

#	Event type	Description
✔	levelTooHigh	Indicates the light level is above the levelHighThreshold
✔	levelTooLow	Indicates the light level is below the levelLowThreshold

Binary Sensor

A Binary Sensor function can be used to model any sensor that provides a digital, binary output. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	level	Sensor Output level.
✔	sensorOutputOn	Indicates the sensor output changed to ON.
✔	applicationType	Application Type of the binary sensor depending on the use case. E.g.: Door opened sensor

Events

#	Event type	Description
✔	sensorOutputOn	Indicates the sensor output changed to ON

Generic Sensor

A Generic Sensor function can be used to model any sensor that provides an analog or multilevel output. This function is optional for both CMS and Gateway, but when supported the requirements in this section shall apply.

Attributes

#	Attribute	Description
✔	levelHighThreshold	Threshold above which a levelTooHigh event is triggered.

✔	levelLowThreshold	Threshold below which a levelTooLow event is triggered.
✔	level	Sensor Output level.
✔	levelTooHigh	Indicates the sensor output level is above the levelHighThreshold.
✔	levelTooLow	Indicates the sensor output level is below the levelLowThreshold.
✔	applicationType	Application Type of the generic sensor depending on the use case. E.g.: Sound sensor

Events

#	Event type	Description
✔	levelTooHigh	Indicates the sensor output level is above the levelHighThreshold
✔	levelTooLow	Indicates the sensor output level is below the levelLowThreshold

Generic Actuator

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

Attributes

#	Attribute	Description
✔	defaultState	Sets the default state output for the generic actuator. This shall be applicable if no other command is active.
✔	actualState	This attribute should reflect the physical state of the source as much as possible. It may be calculated or measured, depending on the specific ODN implementation, which is outside the scope of this specification.
✔	targetCommand	Latest command for the generic actuator.
✔	feedbackCommand	This attribute reflects the command in effect and it might deviate from the actualState due to propagation time or due to internal ODN specific mechanisms to handle the priority of the requests.
✔	calendarID	TALQ Address of the calendar controlling this generic 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.
✔	invalidCalendar	This event is generated when a calendar has been allocated and can not be implemented it.
✔	invalidProgram	This event is generated when a control program has been allocated and can not be implemented it.

✔	programChange	This event is generated when the control program applicable to the actuator has changed.
✔	calendarChange	This event is generated when the calendar applicable to the actuator has changed.
✔	targetCommandChange	This event is generated when the targetCommand has changed.
✔	applicationType	Application Type of the generic actuator depending on the use case. E.g.: Water valve

Events

#	Event type	Description
✔	stateChange	The state has changed.
✔	invalidCalendar	This event is generated when a calendar has been allocated and can not be implemented it.
✔	invalidProgram	This event is generated when a control program has been allocated and can not be implemented it.
✔	programChange	This event is generated when the control program applicable to the actuator has changed.
✔	calendarChange	This event is generated when the calendar applicable to the actuator has changed.
✔	targetCommandChange	This event is generated when the targetCommand has changed.

Presence Sensor

The Presence Sensor function allows a CMS to detect presence. This function may be used in Parking Place detectors as well as in dynamic outdoor lighting scenario.

Attributes

#	Attribute	Description
✔	presenceStatus	Presence status.
✔	presenceStatusChanged	Indicates the presence status changed.
✔	applicationType	Application Type of the presence sensor depending on the use case. E.g.: Presence detector

Events

#	Event type	Description
✔	presenceStatusChanged	Indicates the presence status changed.

Movement Sensor

The Movement Sensor function allows a CMS to detect movement. This function may be used in a Waste Container sensor to detect that container gets emptied or is not in the proper position, as well as in asset tracking applications.[DEPRECATED: This function has been deprecated and it will be removed in the next MAJOR release. Please use the new LocationSensorFunction instead.]

Attributes

#	Attribute	Description
✔	movementThreshold	Threshold above which a movementDetected event is triggered.
✔	movementDetected	Indicates the movement is above the movementThreshold.
✔	notInProperPosition	Indicates the sensor is not in proper position.

Events

#	Event type	Description
✔	movementDetected	Indicates the movement is above the movementThreshold.
✔	notInProperPosition	Indicates the sensor is not in proper position.

Battery Level Sensor

The Battery Level Sensor function allows to measure the charge of the battery, monitor the battery and send events in case the value is above/below configurable thresholds.

Attributes

#	Attribute	Description
✔	powerSource	The power source of battery.
✔	batteryLevelLowThreshold	Threshold below which a batteryLevelTooLow event is triggered.
✔	batteryLevel	Battery level.
✔	batteryLevelTooLow	Indicates the battery level is below the batteryLevelLowThreshold.
✔	applicationType	Application Type of the battery level sensor depending on the use case. E.g.: Solar Battery

Events

#	Event type	Description
✔	batteryLevelTooLow	talq.feature.event.BatteryLevelSensorFunction.batteryLevelTooLow.desc

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).
✔	chargerTemperature	Measured temperature of the charger circuit (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=Charger instead.]
✔	PVTemperature	Measured temperature of the attached photovoltaic module (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=PVT instead.]
✔	accumulatedEnergy	Accumulated energy yield since accumulatedSince (Wh).
✔	startChargeInputVoltage	Configuration parameter to set input voltage thresholds at different temperatures at which the battery charger shall start charging the battery (V, C). The values are stored as a list of KVPs (Key-Value Pair), where the key is the temperature and the value is the voltage.
✔	endChargeInputVoltage	Configuration parameter to set input voltage thresholds at different temperatures at which the battery charger shall cease charging the battery (V, C). The values are stored as a list of KVPs (Key-Value Pair), where the key is the temperature and the value is the voltage.
✔	highTemperatureThreshold	Threshold above which the highTemperature event is triggered (C). [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHighThreshold instead.]
✔	lowTemperatureThreshold	Threshold above which the lowTemperature event is triggered (C). [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooLowThreshold instead.]

✔	highPowerThreshold	Threshold above which the highPower event is triggered (W).
✔	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.
✔	highTemperature	Indicates the measured temperature is above the high temperature threshold. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHigh instead.]
✔	lowTemperature	Indicates the measured temperature is below the low temperature threshold. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooLow instead.]
✔	highPower	Indicates the power exceeds highPowerThreshold.
✔	charging	Indicates whether the battery is being charged.
✔	applicationType	Application Type of the solar battery charger depending on the use case. E.g.: Lamp Battery

Events

#	Event type	Description
✔	highTemperature	Indicates the measured temperature is above the high temperature threshold.
✔	lowTemperature	Indicates the measured temperature is below the low temperature threshold.
✔	highPower	Indicates the power exceeds highPowerThreshold.
✔	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
✔ estimatedCapacity	This attribute gives an estimated remaining capacity of the battery in Ah. This depends very much on the wear and age of the battery.
✔ 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.]
✔ batteryEOCVoltageTemperatureMap	End of charge voltages (V) of the battery for various temperatures (C)
✔ batteryEODVoltageTemperatureMap	End of discharge voltages (V) of the battery for various temperatures (C)
✔ batteryFullThreshold	Level threshold to indicate that the battery is full.
✔ batteryEmptyThreshold	Level threshold to indicate that the battery is empty.
✔ overCurrentChargeThreshold	Maximum charge current threshold (A)
✔ overCurrentDischargeThreshold	Maximum discharge current threshold (A)
✔ highTemperatureThreshold	Threshold above which the highTemperature event is triggered (C). [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHighThreshold instead.]
✔ batteryFull	Indicates that the battery is full.
✔ batteryEmpty	Indicates that the battery is empty.
✔ overCurrentCharge	Indicates that the charge current is higher than the threshold.
✔ overCurrentDischarge	Indicates that the discharge current is higher than the threshold.

✔	highTemperature	Indicates that the measured temperature is higher than the threshold. [DEPRECATED: This attribute has been deprecated and it will be removed in the next MAJOR release. Please use the new TemperatureSensorFunction.temperatureTooHigh 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.
✔	overCurrentCharge	Indicates that the charge current is higher than the threshold.
✔	overCurrentDischarge	Indicates that the discharge current is higher than the threshold.
✔	highTemperature	Indicates that the measured temperature is higher than the threshold.

Traffic Counter*

The Traffic Counter Function is used to provide statistics on the number of vehicles passing on the road. It allows to have the number of pedestrians, bicycles, cars or trucks for a certain period of time that is configurable by the CMS. It also allows to count the number of vehicles using diesel or petrol.

Attributes

#	Attribute	Description
✔	roadUserNumber	Number of road users of the specified type detected over the sampling period.
✔	accumulatedRoadUserNumber	measurement Number of road users of the specified type detected since accumulatedSince.
✔	roadUser	Type of road user (pedestrian, bicycle, motorcycle, car, truck, diesel vehicle, petrol vehicle, electric vehicle, scooter, others).
✔	accumulatedSince	Indicates the date and time at which accumulatedRoadUserNumber is reset to zero. The Gateway may change this value with the actual one depending on implementation.
✔	heavyTrafficDetected	Triggered if the traffic measured over the sampling period is above heavyTrafficDetectedThreshold.
✔	heavyTrafficDetectedThreshold	Threshold above which heavyTrafficDetected is triggered.

✔	trafficSamplingPeriod	Used by heavyTrafficDetected and roadUserNumber. In seconds.
✔	averageSpeed	Average speed measured on the road users of the specified type during the last sampling period (km/h)
✔	averageDistance	Average distance between two road users of the specified type during the last sampling period (m)
✔	speedLimitThreshold	Speed limit threshold used to calculate the percentage of road users of the specified type above speed limit. (km/h)
✔	percentageAboveSpeedLimit	Percentage of road users of the specified type driving above speed limit detected over the sampling period.
✔	applicationType	Application Type of the traffic counter depending on the use case. E.g.: 'People counter; Vehicle counter'
✔	actualUserNumber	Number of road users currently identified by the device
✔	sensorType	Type of sensor (e.g: Bluetooth beacon, WIFI detector)
✔	dailyRoadUserNumber	Cumulated number of road users detected by the device since beginning of the day.
✔	minSpeed	Minimum cutoff speed under which traffic is not measured (km/h)
✔	maxSpeed	Maximum cutoff speed above which traffic is not measured (km/h)
✔	sensorSensitivity	Sensor sensitivity (%) to reduce sensor detection range. This value must be the same when multiple instances of the function are used for the same physical sensor.
✔	trafficDirection	Specifies whether the sensor measures only incoming traffic, outgoing traffic, or both. (Direction 1, Direction 2, Both)

Events

#	Event type	Description
✔	heavyTrafficDetected	Triggered if the traffic measured over the sampling period is above heavyTrafficDetectedThreshold.

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
✔	expectedLocation	Nominal location of the device
✔	locationChangedThreshold	Distance (meters)
✔	location	Location of the device
✔	locationChanged	Triggered when the difference between location and expectedLocation is above locationChangedThreshold
✔	uncertainty	This uncertainty indicates the radius of a circular area in meters, reported by the positioning system. The circular area is used to describe uncertainty about a point for coordinates in a two-dimensional coordinate reference systems (CRS). The center point of a circular area is specified by using the Latitude and the Longitude Resources.
✔	compassDirection	The measured compass direction. 0..360 deg.
✔	velocity	The instantaneous velocity of the device, as defined in [3GPP-TS_23.032]. The AttributeVelocity contains horizontal speed, bearing, vertical speed, direction and uncertainty.
✔	speed	The instantaneous speed is the time rate of change in position of the device without regard for direction: the scalar component of velocity in 3d. (m/s)
✔	applicationType	Application Type of the location sensor depending on the use case. E.g.: Pole Location

Events

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

Accelerometer*

The Accelerometer Function is used to indicate that an object has had an impact with another object and to report its acceleration.

Attributes

#	Attribute	Description
✔	impactDetectedAccelerationThreshold	Threshold for acceleration above which impactDetected is triggered (g)
✔	accelerationSamplingPeriod	In seconds

✔	accelerationX	Maximum acceleration on the X axis (g) over accelerationSamplingPeriod
✔	accelerationY	Maximum acceleration on the Y axis (g) over accelerationSamplingPeriod
✔	accelerationZ	Maximum acceleration on the Z axis (g) over accelerationSamplingPeriod
✔	acceleration	Maximum acceleration of the device (g) over accelerationSamplingPeriod
✔	impactDetected	Indicates that the acceleration is above impactDetectedAccelerationThreshold
✔	applicationType	Application Type of the accelerometer depending on the use case. E.g.: Crash detector

Events

#	Event type	Description
✔	impactDetected	Indicates that the acceleration is above impactDetectedAccelerationThreshold

Orientation*

The Orientation function is used to indicate that an object has changed orientation based on attributes configurable by the CMS or based on internal setup of the vendor. The target orientation of the object could be configured by the CMS or could be handled by the vendor. In the latter case, the configuration is let to the vendor itself and events are triggered depending on internal configuration.

Attributes

#	Attribute	Description
✔	expectedOrientation	Nominal orientation of the device
✔	orientationChangedThreshold	Threshold above which orientationChanged is triggered
✔	orientation	Orientation of the device
✔	orientationChanged	Triggered when orientation differs from expectedOrientation by more than orientationChangedThreshold on any angle, or when the device determines itself that its orientation has changed.
✔	applicationType	Application Type of the orientation depending on the use case. E.g.: Orientation change detector

Events

#	Event type	Description

✔	orientationChanged	Triggered when orientation differs from expectedOrientation by more than orientationChangedThreshold on any angle, or when the device determines itself that its orientation has changed.

Simple Actuator

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

Attributes

#	Attribute	Description
✔	defaultState	Sets the default state output for the simple actuator. This shall be applicable if the actuator is not under an override control (OverrideCommand).
✔	actualState	This attribute should reflect the physical state of the source as much as possible. It may be calculated or measured, depending on the specific ODN implementation, which is outside the scope of this specification.
✔	targetCommand	Latest command for the simple actuator.
✔	feedbackCommand	This attribute reflects the command in effect and it might deviate from the actualState due to propagation time or due to internal ODN specific mechanisms to handle the priority of the requests.
✔	stateChange	The state has changed.
✔	targetCommandChange	This event is generated when the targetCommand has changed.
✔	applicationType	Application Type of the simple actuator depending on the use case. E.g.: Water valve

Events

#	Event type	Description
✔	stateChange	The state has changed.
✔	targetCommandChange	This event is generated when the targetCommand has changed.

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],en d[/time]]] as defined by the Open Group for posix systems [POSIX].
✔	ntpServers	List of NTP servers to use for time synchronization (Hostname or IP address).
✔	ntpSynchPeriod	Number of hours between two time synchronization updates.
✔	currentTime	Current time of the device defined as local time with time zone designator.
✔	lastTimeSync	Last time at which a successful time synchronization occurred.
✔	lastSyncError	Set to True in case the latest time synchronization operation failed. Set to False in case the last operation succeeded.

Events

#	Event type	Description
✔	lastSyncError	This event is generated when the latest time synchronization operation failed.

Segment Monitor*

The Segment Monitor function enables monitoring of segment parameters. Multiple segment monitor functions may be implemented by a single device.

Attributes

#	Attribute	Description
✔	applicationType	Application Type of the segment monitor depending on the use case. E.g.: "Road Lighting, Architecture Lighting"
✔	segmentReference	Reference of the segment monitor depending on the use case. E.g.: "Segment A1"
✔	numberOfLoads	Number of loads being monitored by the segment monitor function.
✔	switchingErrorOn	Indicates error in switching circuit. For instance, if a contactor or relay is used, it may be stuck in ON position.
✔	switchingErrorOff	Indicates error in switching circuit. For instance, if a contactor or relay is used, it may be stuck in OFF position.
✔	leakageDetected	Indicates that an earth leakage fault has been detected.
✔	cabinetDoorOpen	Cabinet door is open.
✔	circuitBreakerTripped	Indicates that the circuit breaker has tripped
✔	localOverride	Indicates that there is a local override (ON, OFF) or no override

Events

#	Event type	Description
✔	cabinetDoorOpen	Cabinet door is open.
✔	circuitBreakerTripped	Indicates that the circuit breaker has tripped
✔	leakageDetected	Indicates that an earth leakage fault has been detected.
✔	localOverride	Indicates that there is a local override (ON, OFF) or no override
✔	switchingErrorOff	Indicates error in switching circuit. For instance, if a contactor or relay is used, it may be stuck in OFF position.
✔	switchingErrorOn	Indicates error in switching circuit. For instance, if a contactor or relay is used, it may be stuck in ON position.

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 • SensorActivePeriod* • AstroAndSensorActivePeriod* • ExternalControlEffect* • FixedControlEffect* • ccDate* • ccDay*	Control Program and calendar options supported are defined by announcing support for the given modes
✔	dayOffset	• 0	Offset of start of day
✔	ccDateSupport		Indicates the ccDate options supported
✔	ccDaySupport		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	• EventRecordingMode • PeriodicRecordingMode • VendorRecordingMode • ImmediateReportingMode • ScheduledReportingMode	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.

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

Test Service

This service provides a mechanism to reduce the human intervention during the certification tests, enabling the certification tests to maximise automation

Objects

Lamp type

Properties

#	Property	Description
✔	name	Descriptive name of the lamp type
✔	address	TALQ Address of the lamp type

✔ wattage	Expected consumed power of the lamp and control gear
✔ controlType	Type of control/dimming interface between the lamp actuator function and the control gear or within the control gear in case lamp actuator is embedded in the control gear
✔ controlVoltMax	DC voltage that gives the maximum light output in a 1-10V control type
✔ controlVoltMin	DC voltage that gives the minimum light output in a 1-10V control type
✔ minLightOutput	Sets the minimum light output under which the lamp actuator will not perform the command
✔ virtualLightOutput	Sets the light output that the lamp actuator shall consider to be equal to 100%
✔ daliLedLinear	If set to true indicates the dimming curve is linear for DALI control type
✔ warmUpTime	talq.feature.property.LampType.warmUpTime.desc
✔ coolDownTime	Sets the delay after a switch OFF command during which the lamp actuator shall not perform any switch ON command
✔ lowCurrentThreshold	Level of the luminaire RMS supply current under which the ODN shall detect a currentTooLow event
✔ highCurrentThreshold	Level of the luminaire RMS supply current above which the ODN shall detect a currentTooHigh event
✔ lowLampVoltageThreshold	Level of lamp voltage (not supply voltage) under which the ODN shall detect a voltageTooLow event. [WARNING: Don't use this attribute as a low supply voltage threshold, use the new LampMonitor.lowSupplyVoltageThreshold introduced by TALQ 2.3.0.]
✔ highLampVoltageThreshold	Level of lamp voltage (not supply voltage) under which the ODN shall detect a voltageTooLow event. [WARNING: Don't use this attribute as a high supply voltage threshold, use the new LampMonitor.highSupplyVoltageThreshold introduced by TALQ 2.3.0.]
✔ highTemperatureThreshold	Temperature above which the temperatureTooHigh event is triggered
✔ maxOperatingHours	Maximum number of operating hours that the lamp is supposed to live with a given specification

✔	powerLightGradient	The ratio of change of light level divided by change in power level
✔	lampPowerTolerance	The number of watts by which the actual lamp power can be in error from the expected lamp power
✔	lampPowerHighThreshold	The absolute number of watts above which the absolutLampPowerTooHigh event is triggered
✔	lampPowerLowThreshold	The absolute number of watts below which the absolutLampPowerTooLow event is triggered
✔	powerFactorThreshold	The threshold below which powerFactorTooLow event is triggered
✔	lumenDepreciationCurve	Set of entries (operating hours, correction factor in %) that form a piece wise linear approximation of the lumen depreciation correction factor curve
✔	cloType	Determines where CLO is implemented in the lamp control gear or in the ODN (e.g. control device)
✔	powerFactorThresholdDimmingCurve	Ordered set of entries (power factor threshold, dim level in %) that form a linear approximation of the power factor threshold vs dimming curve. The first dimming should be 0% and the last 100%. E.g.: 0.65 , 0%; 0.60, 10%; 0.70, 20%; 0.75, 30%; 0.80, 40%; 0.85, 50%; 0.87, 60%; 0.89, 70%; 0.90, 80%; 0.95, 90%; 0.98, 100%.

Event log data

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
✔	startEndFlag	If the event denotes either the start or end of a ‘special’ period, this flag shall be included
✔	info	a string providing more information on the event
✔	attributes	A sequence of attribute values logged together with the event

Command

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
✔	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

Properties

#	Property	Description

✔	address	Group address
✔	members	TALQ Addresses of members of the group
✔	purpose	Main purpose 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 (v2.4.1-update.6) on 2022-08-30 13:18:28.836 +0200.