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| Project | **Standard for Actuator Interface for Cyber and Physical World**<https://sagroups.ieee.org/2888/ **>** |
| Title | **Base Data of Actuator Capability** |
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| Re: |  |
| Abstract | This contribution proposes the base data of the actuator capability |
| Purpose | To start discussion on purpose of the standard |
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# Introduction

This contribution proposes the base data of the actuator capability. The actuator base capabilities include delaytime and locator.

Check all of the capabilities related to the actuator: https://www.jsonschemavalidator.net/s/XM3S4I3o

# Data formats for actuator capabilities

* 1. Actuator capability base data
		1. General

This sub-clause specifies a actuator capability base data.

* + 1. Syntax

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| { "actuatorCapabilityBaseData": { "type": "object", "properties": { "id": { "type": "string" }, "actuatorCapabilityAttributes": { "$ref": "#/definitions/actuatorCapabilityAttributesType" } }, "additionalProperty": false }, "definitions": { "actuatorCapabilityAttributesType": { "type": "object", "properties": { "zerothOrderDelayTime": { "type": "integer", "minimum": 0, "default": 0 }, "firstOrderDelayTime": { "type": "integer", "minimum": 0, "default": 0 }, "locater": { "$ref": "#/definitions/locationType"/\*TBD\*/ } }, "additionalProperty": false } }} |

* + 1. Semantics

The semantics of the actuatorCapabilityBaseData:

| Name | Definition |
| --- | --- |
| actuatorCapabilityBaseData | actuatorCapabilityBaseData provides a base type for a subset of types defined as part of the actuator capability metadata types. |
| id | Unique identifier for identifying individual actuator capabilities. |
| actuatorCapabilityAttributes | Describes a group of attributes for the actuator capabilities in actuatorCapabilityAttributes. |

Semantics of the actuatorCapabilityAttributesType:

| *Name* | *Definition* |
| --- | --- |
| zerothOrderDelayTime | Describes required preparation time of a actuator to be activated since it receives a command in the unit of millisecond (ms). If the zerothOrderDelayTime is not specified, the default value is 0. |
| firstOrderDelayTime | Describes the delay time for a actuator to reach the target intensity since it receives a command and is activated in the unit of millisecond (ms). If the firstOrderDelayTime is not specified, the default value is 0. |
| locater | Describes the position of the actuator from the user’s perspective according to the x-, y-, and z-axis as a reference to a term that shall be using the locationType. |

* + 1. Examples

This example shows the description of a basic actuator capability with the following semantics. The actuator capability id is "CAP-001". This deivice requires preparation time of 1 ms to start, and 0 ms to reach target intensity, and is located at the left side.

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| { "actuatorCapabilityBaseData": { "id": "CAP-001", "actuatorCapabilityAttributes": { "zerothOrderDelayTime": 1, "firstOrderDelayTime": 0, "locater": "left" } }} |