

Model

Package in package "

Model
Version Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019

AssetModel

Package in package 'Model'

AssetModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

AssetModel diagram

SysML Block Definition diagram in package 'AssetModel'

AssetModel
Version 1.0
ssingh created on 10/30/2019. Last modified 11/4/2019

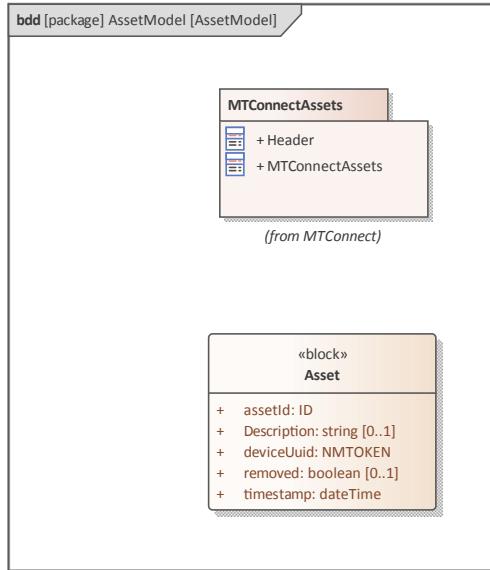


Figure 1: AssetModel

AssetModel

Package in package 'Model'

AssetModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

MTConnectAssets

Package in package 'MTConnect'

MTConnectAssets
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingToolModel

Package in package 'AssetModel'

CuttingToolModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

CuttingToolModel diagram

SysML Block Definition diagram in package 'CuttingToolModel'

CuttingToolModel
Version 1.0
ssingh created on 10/30/2019. Last modified 12/20/2019

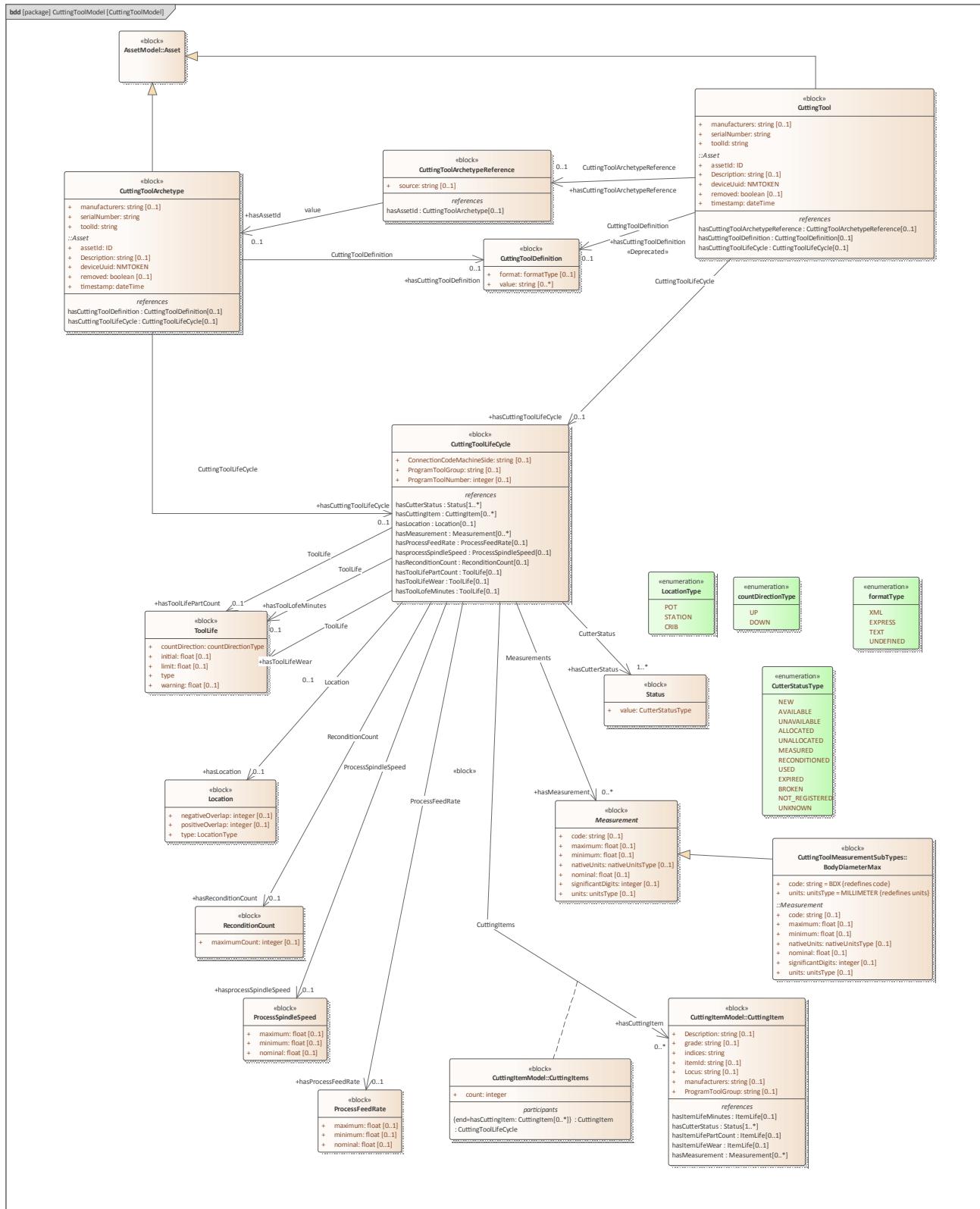


Figure 2: CuttingToolModel

Asset

Block «block» in package 'AssetModel'

Asset
Version 1.0 Phase 1.0 Proposed
ssing created on 10/30/2019. Last modified 10/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Aggregation from «block» Asset to «block» MTConnectAssets	[Name is Assets. Direction is 'Destination -> Source'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» CuttingToolArchetype to «block» Asset	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingTool to «block» Asset	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ assetId : ID Public	[Is static True. Containment is Not Specified.]
◆ Description : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ deviceUuid : NMOKEN Public	[Is static True. Containment is Not Specified.]
◆ removed : boolean Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ timestamp : dateTime Public	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
↙ Association (direction: Source -> Destination) value Source: Public (Block) AssetRemoved «block»	Target: Public hasAssetId (Block) Asset «block»
↙ Association (direction: Source -> Destination) value Source: Public (Block) AssetChanged «block»	Target: Public hasAssetId (Block) Asset «block»

CuttingToolModel

Package in package 'AssetModel'

CuttingToolModel

CuttingItem

Block «block» in package 'CuttingItemModel'

CuttingItem

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

STRUCTURAL PART OF CuttingItem

⌚ hasCutterStatus : Property

⌚ hasItemLifeMinutes : Property

⌚ hasItemLifePartCount : Property

⌚ hasItemLifeWear : Property

⌚ hasMeasurement : Property

ATTRIBUTES

◆ Description : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ grade : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ indices : string Public

[Is static True. Containment is Not Specified.]

◆ itemId : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ Locus : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ manufacturers : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ ProgramToolGroup : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
ASSOCIATIONS	
✓ Association (direction: Source -> Destination) CutterStatus Source: Public (Block) CuttingItem «block»	Target: Public hasCutterStatus (Block) Status «block» Cardinality: [1..*]
✓ Association (direction: Source -> Destination) Measurements	
Source: Public (Block) CuttingItem «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeWear (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifePartCount (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeMinutes (Block) ItemLife «block» Cardinality: [0..1]
✓ Block (direction: Source -> Destination) «block» CuttingItems	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasCuttingItem (Block) CuttingItem «block» Cardinality: [0..*]

hasCutterStatus

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasCutterStatus
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifeMinutes

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifeMinutes
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifePartCount

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifePartCount
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifeWear

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifeWear
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

hasMeasurement

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasMeasurement
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingItems

Block «block» in package 'CuttingItemModel'

CuttingItems
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/1/2019. Last modified 11/4/2019

STRUCTURAL PART OF CuttingItems
❖ ParticipantProperty : ParticipantProperty «participantProperty»
❖ ParticipantProperty : ParticipantProperty «participantProperty»
ATTRIBUTES
❖ count : integer Public [Is static True. Containment is Not Specified.]

ParticipantProperty

ParticipantProperty «*participantProperty*» owned by 'CuttingItems', in package 'CuttingItemModel'

ParticipantProperty
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ParticipantProperty

ParticipantProperty «*participantProperty*» owned by 'CuttingItems', in package 'CuttingItemModel'

ParticipantProperty
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

BodyDiameterMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

BodyDiameterMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» BodyDiameterMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = BDX

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingItemModel

Package in package 'CuttingToolModel'

CuttingItemModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingItemModel diagram

SysML Block Definition diagram in package 'CuttingItemModel'

CuttingItemModel
Version 1.0

ssingh created on 11/4/2019. Last modified 11/4/2019

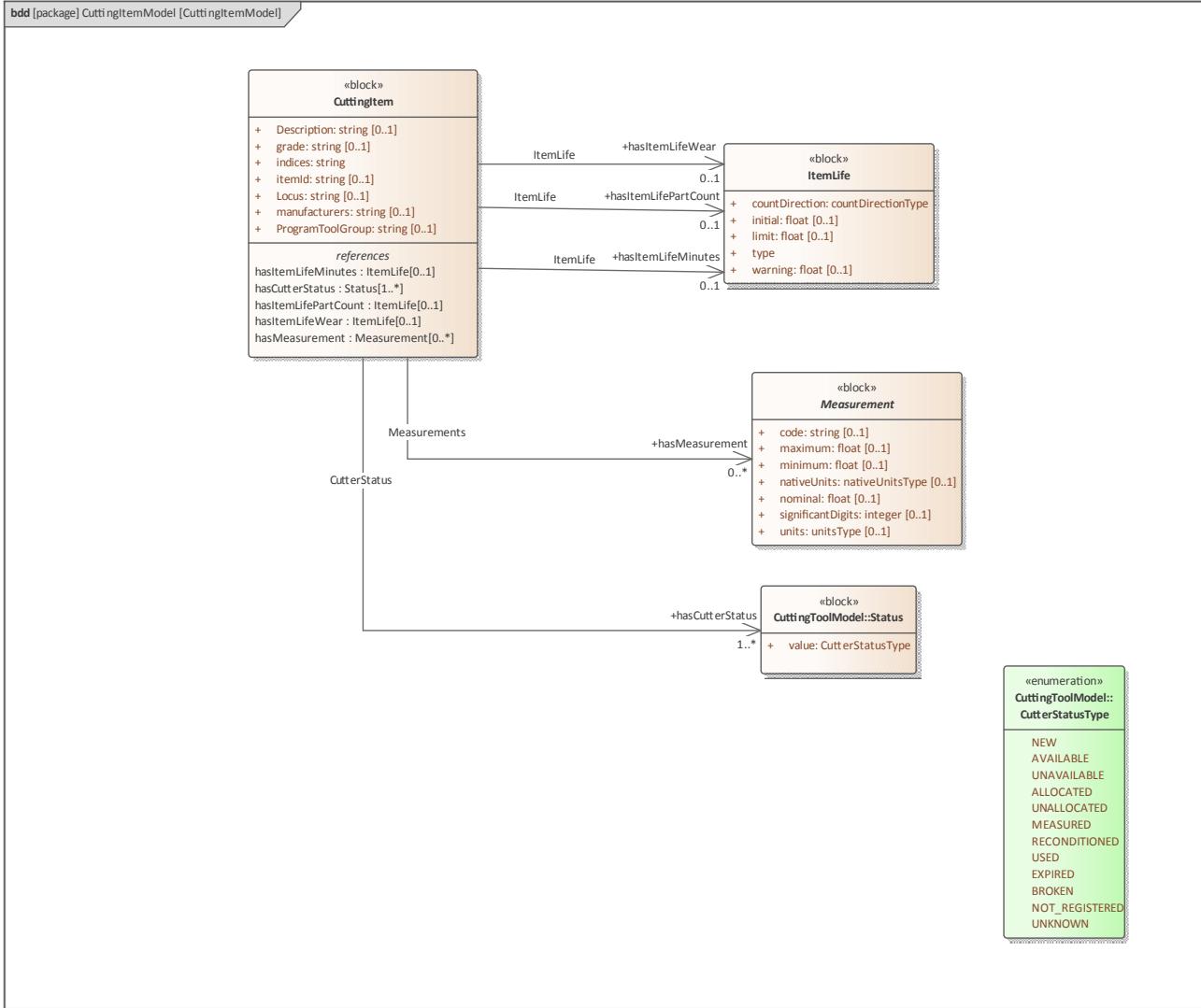


Figure 3: CuttingItemModel

Status

Block «block» in package 'CuttingToolModel'

Status

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ATTRIBUTES
<p>◆ value : CutterStatusType Public [Is static True. Containment is Not Specified.]</p>
ASSOCIATIONS

ASSOCIATIONS		
Association (direction: Source -> Destination) CutterStatus	Source: Public (Block) CuttingItem «block»	Target: Public hasCutterStatus (Block) Status «block» Cardinality: [1..*]
Association (direction: Source -> Destination) CutterStatus	Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasCutterStatus (Block) Status «block» Cardinality: [1..*]

CutterStatusType

Enumeration in package 'CuttingToolModel'

CutterStatusType
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES	
NEW : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
AVAILABLE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
UNAVAILABLE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
ALLOCATED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
UNALLOCATED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
MEASURED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
RECONDITIONED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
USED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
EXPIRED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES
◆ BROKEN : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ NOT_REGISTERED : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNKNOWN : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]

CuttingItemModel

Package in package 'CuttingToolModel'

CuttingItemModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingItemMeasurementSubTypes

Package in package 'CuttingItemModel'

CuttingItemMeasurementSubTypes
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

CuttingItemMeasurementSubTypes diagram

SysML Block Definition diagram in package 'CuttingItemMeasurementSubTypes'

CuttingItemMeasurementSubTypes
Version 1.0
ssingh created on 12/19/2019. Last modified 12/19/2019

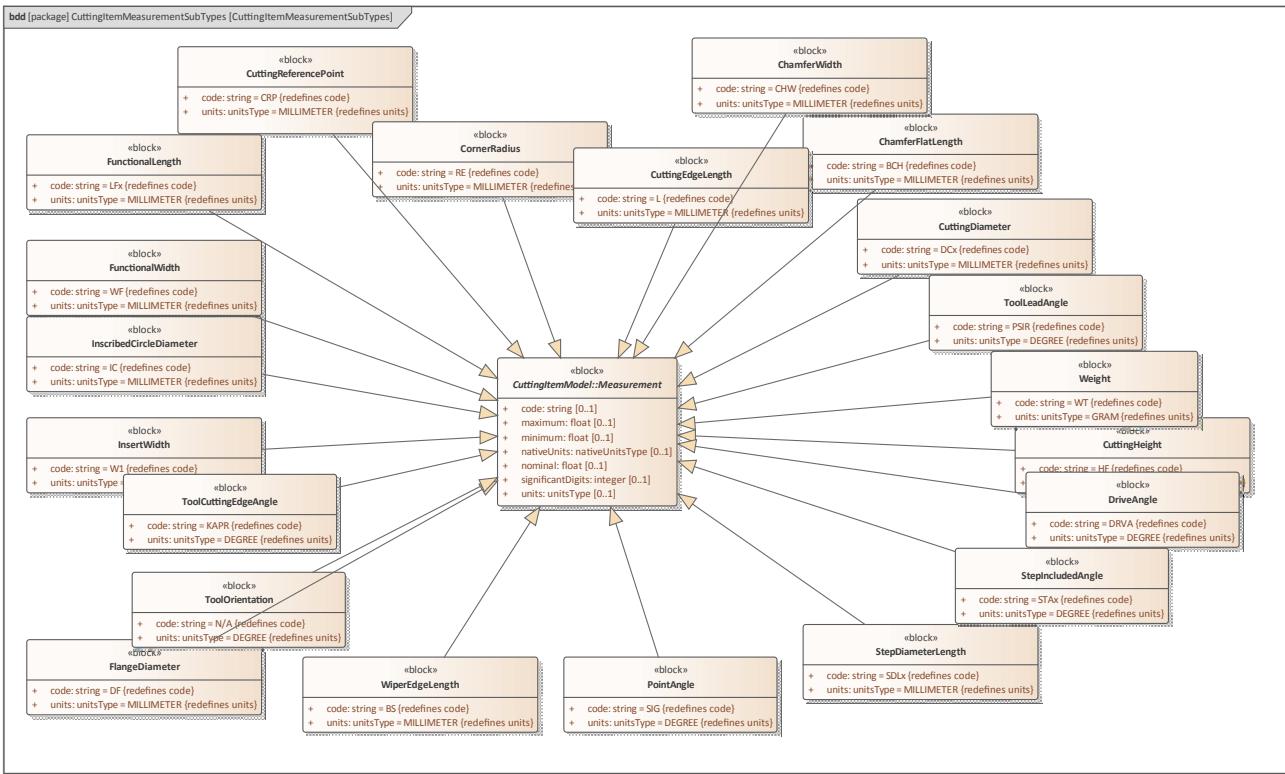


Figure 4: CuttingItemMeasurementSubTypes

CuttingItemMeasurementSubTypes

Package in package 'CuttingItemModel'

CuttingItemMeasurementSubTypes
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

Measurement

Block «block» in package 'CuttingItemModel'

Measurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

INCOMING STRUCTURAL RELATIONSHIPS
⇒ Generalization from «block» CornerRadius to «block» Measurement [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ToolOrientation to «block» Measurement [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» WiperEdgeLength to «block» Measurement [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingReferencePoint to «block» Measurement [Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» CuttingEdgeLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Weight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» DriveAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» InsertWidth to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FlangeDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ChamferFlatLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ToolLeadAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» PointAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingHeight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» InscribedCircleDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StepDiameterLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FunctionalWidth to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StepIncludedAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FunctionalLength to «block» Measurement	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» ToolCuttingEdgeAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ChamferWidth to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ maximum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ minimum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nominal : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Source -> Destination) Measurements Source: Public (Block) CuttingItem «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]

ChamferFlatLength

Block «block» in package 'CuttingItemMeasurementSubTypes'

ChamferFlatLength
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ChamferFlatLength to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = BCH

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

ChamferWidth

Block «block» in package 'CuttingItemMeasurementSubTypes'

ChamferWidth
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ChamferWidth to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = CHW

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CornerRadius

Block «block» in package 'CuttingItemMeasurementSubTypes'

CornerRadius

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» CornerRadius to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = RE

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingDiameter

Block «block» in package 'CuttingItemMeasurementSubTypes'

CuttingDiameter

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» CuttingDiameter to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = DCx

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingEdgeLength

Block «block» in package 'CuttingItemMeasurementSubTypes'

CuttingEdgeLength

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CuttingEdgeLength to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = L

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingHeight

Block «block» in package 'CuttingItemMeasurementSubTypes'

CuttingHeight
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CuttingHeight to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = HF

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingReferencePoint

Block «block» in package 'CuttingItemMeasurementSubTypes'

CuttingReferencePoint
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CuttingReferencePoint to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

ATTRIBUTES	
◆ code : string Public = CRP	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = MILLIMETER	[Is static True. Containment is Not Specified.]

DriveAngle*Block «block» in package 'CuttingItemMeasurementSubTypes'*

DriveAngle
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» DriveAngle to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = DRVA	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = DEGREE	[Is static True. Containment is Not Specified.]

FlangeDiameter*Block «block» in package 'CuttingItemMeasurementSubTypes'*

FlangeDiameter
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» FlangeDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = DF	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = MILLIMETER	[Is static True. Containment is Not Specified.]

FunctionalLength

Block «block» in package 'CuttingItemMeasurementSubTypes'

FunctionalLength
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» FunctionalLength to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = LFx

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

FunctionalWidth

Block «block» in package 'CuttingItemMeasurementSubTypes'

FunctionalWidth
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» FunctionalWidth to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = WF

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

InscribedCircleDiameter

Block «block» in package 'CuttingItemMeasurementSubTypes'

InscribedCircleDiameter
Version 1.0 Phase 1.0 Proposed

ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» IncribedCircleDiameter to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = IC

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

InsertWidth

Block «block» in package 'CuttingItemMeasurementSubTypes'

InsertWidth

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» InsertWidth to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = W1

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

PointAngle

Block «block» in package 'CuttingItemMeasurementSubTypes'

PointAngle

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» PointAngle to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = SIG	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = DEGREE	[Is static True. Containment is Not Specified.]

StepDiameterLength

Block «block» in package 'CuttingItemMeasurementSubTypes'

StepDiameterLength
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» StepDiameterLength to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = SDLx	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = MILLIMETER	[Is static True. Containment is Not Specified.]

StepIncludedAngle

Block «block» in package 'CuttingItemMeasurementSubTypes'

StepIncludedAngle
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» StepIncludedAngle to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = STAx	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = DEGREE	[Is static True. Containment is Not Specified.]

ATTRIBUTES***ToolCuttingEdgeAngle****Block «block» in package 'CuttingItemMeasurementSubTypes'*

ToolCuttingEdgeAngle
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ToolCuttingEdgeAngle to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = KAPR

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = DEGREE

[Is static True. Containment is Not Specified.]

ToolLeadAngle*Block «block» in package 'CuttingItemMeasurementSubTypes'*

ToolLeadAngle
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ToolLeadAngle to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = PSIR

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = DEGREE

[Is static True. Containment is Not Specified.]

ToolOrientation*Block «block» in package 'CuttingItemMeasurementSubTypes'*

ToolOrientation
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ToolOrientation to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = N/A

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = DEGREE

[Is static True. Containment is Not Specified.]

Weight

Block «block» in package 'CuttingItemMeasurementSubTypes'

Weight
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Weight to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = WT

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = GRAM

[Is static True. Containment is Not Specified.]

WiperEdgeLength

Block «block» in package 'CuttingItemMeasurementSubTypes'

WiperEdgeLength
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» WiperEdgeLength to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = BS	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = MILLIMETER	[Is static True. Containment is Not Specified.]

CuttingItem

Block «block» in package 'CuttingItemModel'

CuttingItem
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

STRUCTURAL PART OF CuttingItem	
◆ hasCutterStatus : Property	
◆ hasItemLifeMinutes : Property	
◆ hasItemLifePartCount : Property	
◆ hasItemLifeWear : Property	
◆ hasMeasurement : Property	

ATTRIBUTES	
◆ Description : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ grade : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ indices : string Public	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ itemId : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ Locus : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ manufacturers : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ ProgramToolGroup : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✓ Association (direction: Source -> Destination) CutterStatus	
Source: Public (Block) CuttingItem «block»	Target: Public hasCutterStatus (Block) Status «block» Cardinality: [1..*]
✓ Association (direction: Source -> Destination) Measurements	
Source: Public (Block) CuttingItem «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeWear (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifePartCount (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeMinutes (Block) ItemLife «block» Cardinality: [0..1]
✓ Block (direction: Source -> Destination) «block» CuttingItems	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasCuttingItem (Block) CuttingItem

ASSOCIATIONS
«block» Cardinality: [0..*]

hasCutterStatus

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasCutterStatus
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifeMinutes

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifeMinutes
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifePartCount

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifePartCount
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasItemLifeWear

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasItemLifeWear
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasMeasurement

Property owned by 'CuttingItem', in package 'CuttingItemModel'

hasMeasurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingItems

Block «block» in package 'CuttingItemModel'

CuttingItems
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

STRUCTURAL PART OF CuttingItems
❖ ParticipantProperty : ParticipantProperty «participantProperty»
❖ ParticipantProperty : ParticipantProperty «participantProperty»

ATTRIBUTES
◆ count : integer Public [Is static True. Containment is Not Specified.]

ParticipantProperty

ParticipantProperty «participantProperty» owned by 'CuttingItems', in package 'CuttingItemModel'

ParticipantProperty
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ParticipantProperty

ParticipantProperty «participantProperty» owned by 'CuttingItems', in package 'CuttingItemModel'

ParticipantProperty
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ItemLife

Block «block» in package 'CuttingItemModel'

ItemLife
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ATTRIBUTES
◆ countDirection : countDirectionType Public [Is static True. Containment is Not Specified.]
◆ initial : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ limit : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ type : Public

ATTRIBUTES	
	[Is static True. Containment is Not Specified.]
warning : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
ASSOCIATIONS	
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeWear (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifePartCount (Block) ItemLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ItemLife	
Source: Public (Block) CuttingItem «block»	Target: Public hasItemLifeMinutes (Block) ItemLife «block» Cardinality: [0..1]

Measurement

Block «block» in package 'CuttingItemModel'

Measurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» CornerRadius to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ToolOrientation to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» WiperEdgeLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingReferencePoint to «block» Measurement	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» CuttingEdgeLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Weight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» DriveAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» InsertWidth to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FlangeDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ChamferFlatLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ToolLeadAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» PointAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingHeight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» InscribedCircleDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StepDiameterLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FunctionalWidth to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StepIncludedAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FunctionalLength to «block» Measurement	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» ToolCuttingEdgeAngle to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ChamferWidth to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ maximum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ minimum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nominal : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Source -> Destination) Measurements Source: Public (Block) CuttingItem «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]

CuttingToolMeasurementSubTypes

Package in package 'CuttingToolModel'

CuttingToolMeasurementSubTypes
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

CuttingToolMeasurementSubTypes diagram

SysML Block Definition diagram in package 'CuttingToolMeasurementSubTypes'

CuttingToolMeasurementSubTypes
Version 1.0
ssingh created on 12/19/2019. Last modified 12/19/2019

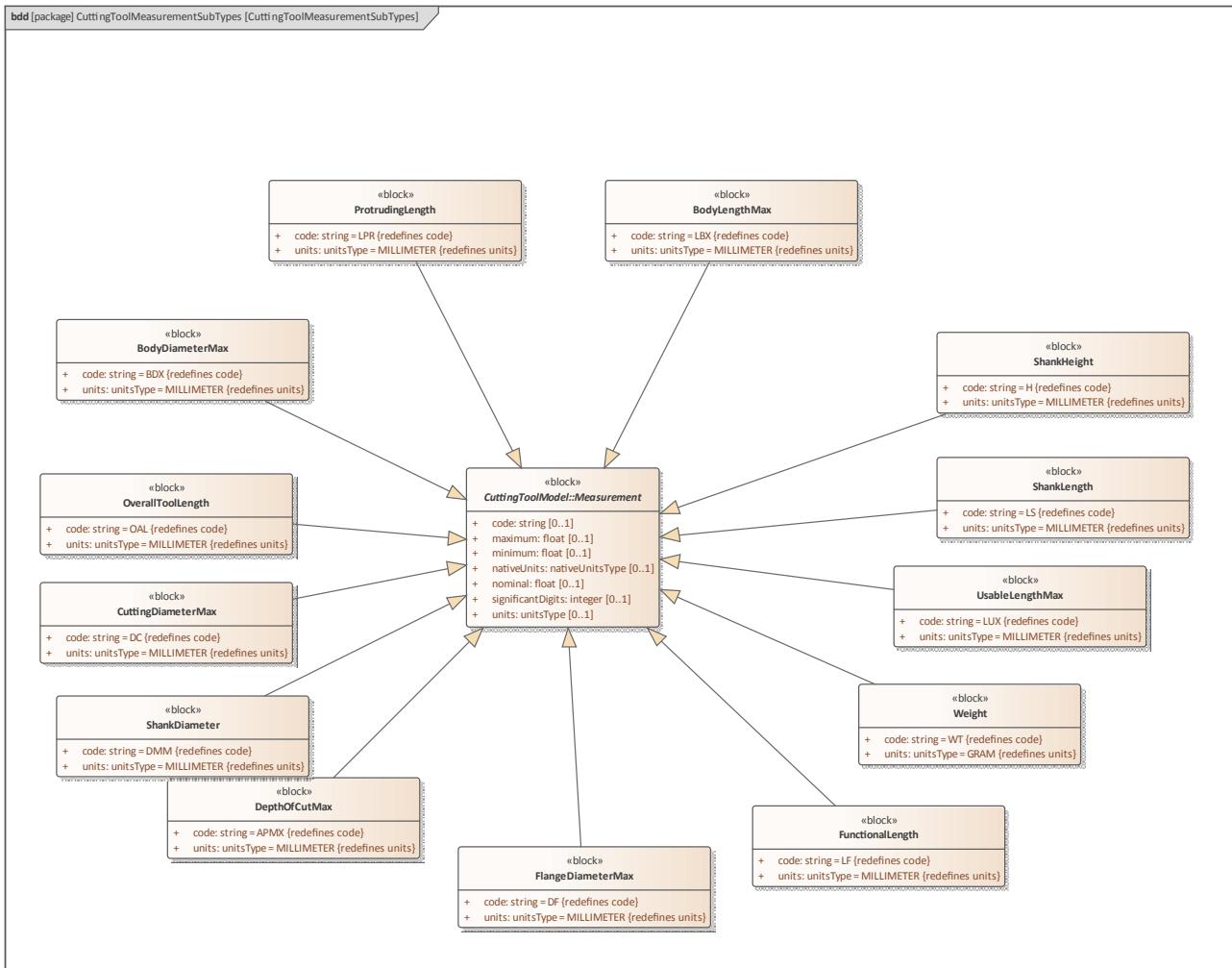


Figure 5: CuttingToolMeasurementSubTypes

Measurement

Block «block» in package 'CuttingToolModel'

Measurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» FunctionalLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» OverallToolLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankHeight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» BodyDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Weight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» DepthOfCutMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FlangeDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ProtrudingLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» BodyLengthMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» UsableLengthMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ maximum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ minimum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nominal : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
 Association (direction: Source -> Destination) Measurements Source: Public (Block) CuttingToolLifeCycle «block» Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]	

CuttingToolMeasurementSubTypes

Package in package 'CuttingToolModel'

CuttingToolMeasurementSubTypes
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

BodyDiameterMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

BodyDiameterMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» BodyDiameterMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = BDX

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

BodyLengthMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

BodyLengthMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» BodyLengthMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = LBX

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

CuttingDiameterMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

CuttingDiameterMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CuttingDiameterMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = DC

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

DepthOfCutMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

DepthOfCutMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» DepthOfCutMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = APMX

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

FlangeDiameterMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

FlangeDiameterMax
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» FlangeDiameterMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

ATTRIBUTES

◆ code : string Public = DF
[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER
[Is static True. Containment is Not Specified.]

FunctionalLength

Block «block» in package 'CuttingToolMeasurementSubTypes'

FunctionalLength
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» FunctionalLength to «block» Measurement
[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = LF
[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER
[Is static True. Containment is Not Specified.]

OverallToolLength

Block «block» in package 'CuttingToolMeasurementSubTypes'

OverallToolLength
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» OverallToolLength to «block» Measurement
[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = OAL
[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER
[Is static True. Containment is Not Specified.]

ProtrudingLength

Block «block» in package 'CuttingToolMeasurementSubTypes'

ProtrudingLength
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ProtrudingLength to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = LPR

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

ShankDiameter

Block «block» in package 'CuttingToolMeasurementSubTypes'

ShankDiameter
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ShankDiameter to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = DMM

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

ShankHeight

Block «block» in package 'CuttingToolMeasurementSubTypes'

ShankHeight
Version 1.0 Phase 1.0 Proposed

ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ShankHeight to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = H

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

ShankLength

Block «block» in package 'CuttingToolMeasurementSubTypes'

ShankLength

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» ShankLength to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ code : string Public = LS

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER

[Is static True. Containment is Not Specified.]

UsableLengthMax

Block «block» in package 'CuttingToolMeasurementSubTypes'

UsableLengthMax

Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Generalization from «block» UsableLengthMax to «block» Measurement

[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = LUX	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = MILLIMETER	[Is static True. Containment is Not Specified.]

Weight

Block «block» in package 'CuttingToolMeasurementSubTypes'

Weight
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» Weight to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public = WT	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = GRAM	[Is static True. Containment is Not Specified.]

CuttingTool

Block «block» in package 'CuttingToolModel'

CuttingTool
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF CuttingTool	
✿ hasCuttingToolArchetypeReference : Property	
✿ hasCuttingToolDefinition : Property	
✿ hasCuttingToolLifeCycle : Property	
OUTGOING STRUCTURAL RELATIONSHIPS	

OUTGOING STRUCTURAL RELATIONSHIPS	
 Generalization from «block» CuttingTool to «block» Asset	[Direction is 'Source -> Destination'.]
ATTRIBUTES	
 manufacturers : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]	
 serialNumber : string Public [Is static True. Containment is Not Specified.]	
 toolId : string Public [Is static True. Containment is Not Specified.]	
ASSOCIATIONS	
 Association (direction: Source -> Destination) CuttingToolDefinition Source: Public (Block) CuttingTool «block» Target: Public «Deprecated» hasCuttingToolDefinition (Block) CuttingToolDefinition «block» Cardinality: [0..1]	
 Association (direction: Source -> Destination) CuttingToolLifeCycle Source: Public (Block) CuttingTool «block» Target: Public hasCuttingToolLifeCycle (Block) CuttingToolLifeCycle «block» Cardinality: [0..1]	
 Association (direction: Source -> Destination) CuttingToolArchetypeReference Source: Public (Block) CuttingTool «block» Target: Public hasCuttingToolArchetypeReference (Block) CuttingToolArchetypeReference «block» Cardinality: [0..1]	

hasCuttingToolArchetypeReference

Property owned by 'CuttingTool', in package 'CuttingToolModel'

hasCuttingToolArchetypeReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasCuttingToolDefinition

Property owned by 'CuttingTool', in package 'CuttingToolModel'

hasCuttingToolDefinition
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

hasCuttingToolLifeCycle

Property owned by 'CuttingTool', in package 'CuttingToolModel'

hasCuttingToolLifeCycle
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 11/4/2019. Last modified 11/4/2019

CuttingToolArchetype

Block «block» in package 'CuttingToolModel'

CuttingToolArchetype
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF CuttingToolArchetype

⚙️ hasCuttingToolDefinition : Property

⚙️ hasCuttingToolLifeCycle : Property

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CuttingToolArchetype to «block» Asset

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ manufacturers : string Public
 Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
 [Is static True. Containment is Not Specified.]

◆ serialNumber : string Public
 [Is static True. Containment is Not Specified.]

◆ toolId : string Public
 [Is static True. Containment is Not Specified.]

ASSOCIATIONS

✍️ Association (direction: Source -> Destination) CuttingToolLifeCycle

Source: Public (Block) CuttingToolArchetype «block»

Target: Public hasCuttingToolLifeCycle (Block)
 CuttingToolLifeCycle «block»
 Cardinality: [0..1]

ASSOCIATIONS		
Association (direction: Source -> Destination) CuttingToolDefinition		
Source: Public (Block) CuttingToolArchetype «block»	Target: Public hasCuttingToolDefinition (Block) CuttingToolDefinition «block»	Cardinality: [0..1]
Source: Public (Block) CuttingToolArchetypeReference «block»	Target: Public hasAssetId (Block) CuttingToolArchetype «block»	Cardinality: [0..1]

hasCuttingToolDefinition

Property owned by 'CuttingToolArchetype', in package 'CuttingToolModel'

hasCuttingToolDefinition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

hasCuttingToolLifeCycle

Property owned by 'CuttingToolArchetype', in package 'CuttingToolModel'

hasCuttingToolLifeCycle
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

CuttingToolArchetypeReference

Block «block» in package 'CuttingToolModel'

CuttingToolArchetypeReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

STRUCTURAL PART OF CuttingToolArchetypeReference	
hasAssetId : Property	

ATTRIBUTES	
source : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	

ASSOCIATIONS	
Association (direction: Source -> Destination) value	Source: Public (Block) CuttingToolArchetypeReference «block» Target: Public hasAssetId (Block) CuttingToolArchetype «block» Cardinality: [0..1]
Association (direction: Source -> Destination) CuttingToolArchetypeReference	Source: Public (Block) CuttingTool «block» Target: Public hasCuttingToolArchetypeReference (Block) CuttingToolArchetypeReference «block» Cardinality: [0..1]

hasAssetId

Property owned by 'CuttingToolArchetypeReference', in package 'CuttingToolModel'

hasAssetId
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019

CuttingToolDefinition

Block «block» in package 'CuttingToolModel'

CuttingToolDefinition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

ATTRIBUTES	
format : formatType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
value : string Public Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
Association (direction: Source -> Destination) CuttingToolDefinition	Source: Public (Block) CuttingTool «block» Target: Public «Deprecated» hasCuttingToolDefinition (Block) CuttingToolDefinition «block» Cardinality: [0..1]
Association (direction: Source -> Destination) CuttingToolDefinition	Source: Public (Block) CuttingToolArchetype «block» Target: Public hasCuttingToolDefinition (Block) CuttingToolDefinition «block»

ASSOCIATIONS	Cardinality: [0..1]
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CuttingToolLifeCycle

Block «block» in package 'CuttingToolModel'

CuttingToolLifeCycle
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF CuttingToolLifeCycle
⌚ hasCutterStatus : Property
⌚ hasCuttingItem : Property
⌚ hasLocation : Property
⌚ hasMeasurement : Property
⌚ hasProcessFeedRate : Property
⌚ hasprocessSpindleSpeed : Property
⌚ hasReconditionCount : Property
⌚ hasToolLifePartCount : Property
⌚ hasToolLifeWear : Property
⌚ hasToolLofeMinutes : Property

ATTRIBUTES
◆ ConnectionCodeMachineSide : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ ProgramToolGroup : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ ProgramToolNumber : integer Public

ATTRIBUTES	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
ASSOCIATIONS	
Association (direction: Source -> Destination) Measurements	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]
Block (direction: Source -> Destination) «block» CuttingItems	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasCuttingItem (Block) CuttingItem «block» Cardinality: [0..*]
Association (direction: Source -> Destination) ReconditionCount	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasReconditionCount (Block) ReconditionCount «block» Cardinality: [0..1]
Association (direction: Source -> Destination) CutterStatus	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasCutterStatus (Block) Status «block» Cardinality: [1..*]
Association (direction: Source -> Destination) ToolLife	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasToolLifePartCount (Block) ToolLife «block» Cardinality: [0..1]
Association (direction: Source -> Destination) ToolLifeWear	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasToolLifeWear (Block) ToolLife «block» Cardinality: [0..1]
Association (direction: Source -> Destination) Location	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasLocation (Block) Location «block» Cardinality: [0..1]
Association (direction: Source -> Destination) ProcessSpindleSpeed	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasprocessSpindleSpeed (Block) ProcessSpindleSpeed «block» Cardinality: [0..1]

ASSOCIATIONS	
Association (direction: Source -> Destination) ProcessFeedRate	
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasProcessFeedRate (Block) ProcessFeedRate «block» Cardinality: [0..1]
Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasToolLofeMinutes (Block) ToolLife «block» Cardinality: [0..1]
Association (direction: Source -> Destination) CuttingToolLifeCycle	
Source: Public (Block) CuttingTool «block»	Target: Public hasCuttingToolLifeCycle (Block) CuttingToolLifeCycle «block» Cardinality: [0..1]
Association (direction: Source -> Destination) CuttingToolLifeCycle	
Source: Public (Block) CuttingToolArchetype «block»	Target: Public hasCuttingToolLifeCycle (Block) CuttingToolLifeCycle «block» Cardinality: [0..1]

hasCutterStatus

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasCutterStatus
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasCuttingItem

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasCuttingItem
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasLocation

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasLocation
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasMeasurement

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasMeasurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasProcessFeedRate

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasProcessFeedRate
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasprocessSpindleSpeed

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasprocessSpindleSpeed
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasReconditionCount

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasReconditionCount
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasToolLifePartCount

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasToolLifePartCount
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasToolLifeWear

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasToolLifeWear
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

hasToolLofeMinutes

Property owned by 'CuttingToolLifeCycle', in package 'CuttingToolModel'

hasToolLofeMinutes
Version 1.0 Phase 1.0 Proposed

Location

Block «block» in package 'CuttingToolModel'

Location
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES

◆ negativeOverlap : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ positiveOverlap : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ type : LocationType Public	[Is static True. Containment is Not Specified.]

ASSOCIATIONS

↙ Association (direction: Source -> Destination) Location

Source: Public (Block) CuttingToolLifeCycle «block»

Target: Public hasLocation (Block) Location

«block» Cardinality: [0..1]

Measurement

Block «block» in package 'CuttingToolModel'

Measurement
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» FunctionalLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» OverallToolLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankHeight to «block» Measurement	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» BodyDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Weight to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» DepthOfCutMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» FlangeDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ProtrudingLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CuttingDiameterMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» BodyLengthMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankLength to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» UsableLengthMax to «block» Measurement	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ShankDiameter to «block» Measurement	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ code : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ maximum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ minimum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public	

ATTRIBUTES	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nominal : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
Association (direction: Source -> Destination) Measurements Source: Public (Block) CuttingToolLifeCycle «block»	Target: Public hasMeasurement (Block) Measurement «block» Cardinality: [0..*]

ProcessFeedRate

Block «block» in package 'CuttingToolModel'

ProcessFeedRate
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES	
◆ maximum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ minimum : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nominal : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
Association (direction: Source -> Destination) ProcessFeedRate	

ASSOCIATIONS

Source: Public (Block) CuttingToolLifeCycle «block»

Target: Public hasProcessFeedRate (Block)

ProcessFeedRate «block»

Cardinality: [0..1]

ProcessSpindleSpeed*Block «block» in package 'CuttingToolModel'*

ProcessSpindleSpeed

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019**ATTRIBUTES**

◆ maximum : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ minimum : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ nominal : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

/ Association (direction: Source -> Destination) ProcessSpindleSpeed

Source: Public (Block) CuttingToolLifeCycle «block»

Target: Public hasprocessSpindleSpeed (Block)

ProcessSpindleSpeed «block»

Cardinality: [0..1]

ReconditionCount*Block «block» in package 'CuttingToolModel'*

ReconditionCount

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019**ATTRIBUTES**

◆ maximumCount : integer Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

ASSOCIATIONS

Association (direction: Source -> Destination) ReconditionCount

Source: Public (Block) CuttingToolLifeCycle «block»

Target: Public hasReconditionCount (Block)
ReconditionCount «block»

Cardinality: [0..1]

Status

Block «block» in package 'CuttingToolModel'

Status

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/4/2019

ATTRIBUTES

value : CutterStatusType Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

Association (direction: Source -> Destination) CutterStatus

Source: Public (Block) CuttingItem «block»

Target: Public hasCutterStatus (Block) Status
«block»

Cardinality: [1..*]

Association (direction: Source -> Destination) CutterStatus

Source: Public (Block) CuttingToolLifeCycle «block»

Target: Public hasCutterStatus (Block) Status
«block»

Cardinality: [1..*]

ToolLife

Block «block» in package 'CuttingToolModel'

ToolLife

Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES

countDirection : countDirectionType Public

[Is static True. Containment is Not Specified.]

initial : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ limit : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ warning : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✓ Association (direction: Source -> Destination) ToolLife	Source: Public (Block) CuttingToolLifeCycle «block» Target: Public hasToolLifePartCount (Block) ToolLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ToolLife	Source: Public (Block) CuttingToolLifeCycle «block» Target: Public hasToolLifeWear (Block) ToolLife «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) ToolLife	Source: Public (Block) CuttingToolLifeCycle «block» Target: Public hasToolLifeMinutes (Block) ToolLife «block» Cardinality: [0..1]

countDirectionType

Enumeration in package 'CuttingToolModel'

countDirectionType
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES	
◆ UP : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DOWN : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

CutterStatusType

Enumeration in package 'CuttingToolModel'

CutterStatusType
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES	
◆ NEW : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ AVAILABLE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNAVAILABLE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ ALLOCATED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNALLOCATED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MEASURED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ RECONDITIONED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ USED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ EXPIRED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ BROKEN : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ NOT_REGISTERED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNKNOWN : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

formatType

Enumeration in package 'CuttingToolModel'

formatType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 12/19/2019

ATTRIBUTES	
◆ XML : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ EXPRESS : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ TEXT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNDEFINED : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

LocationType

Enumeration in package 'CuttingToolModel'

LocationType
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

ATTRIBUTES	
◆ POT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ STATION : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ CRIB : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

Asset

Block «block» in package 'AssetModel'

Asset
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Aggregation from «block» Asset to «block» MTConnectAssets

[Name is Assets. Direction is 'Destination -> Source'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» CuttingToolArchetype to «block» Asset

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» CuttingTool to «block» Asset

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ assetId : ID Public

[Is static True. Containment is Not Specified.]

◆ Description : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ deviceUuid : NMOKEN Public

[Is static True. Containment is Not Specified.]

◆ removed : boolean Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ timestamp : dateTime Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

↙ Association (direction: Source -> Destination) value

Source: Public (Block) AssetRemoved «block»

Target: Public hasAssetId (Block) Asset «block»

↙ Association (direction: Source -> Destination) value

Source: Public (Block) AssetChanged «block»

Target: Public hasAssetId (Block) Asset «block»

Interfaces

Package in package 'Model'

Interfaces
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Interfaces diagram

SysML Block Definition diagram in package 'Interfaces'

Interfaces
Version 1.0
ssingh created on 10/1/2019. Last modified 12/19/2019

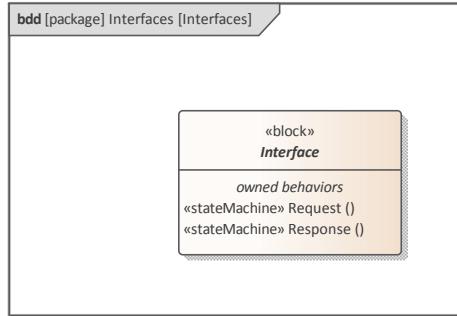


Figure 6: Interfaces

Interfaces

Package in package 'Model'

Interfaces
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Triggers

Package in package 'Interfaces'

Triggers
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

Simulation diagram

SysML Block Definition diagram in package 'Triggers'

Simulation
Version 1.0
ssingh created on 12/19/2019. Last modified 12/19/2019

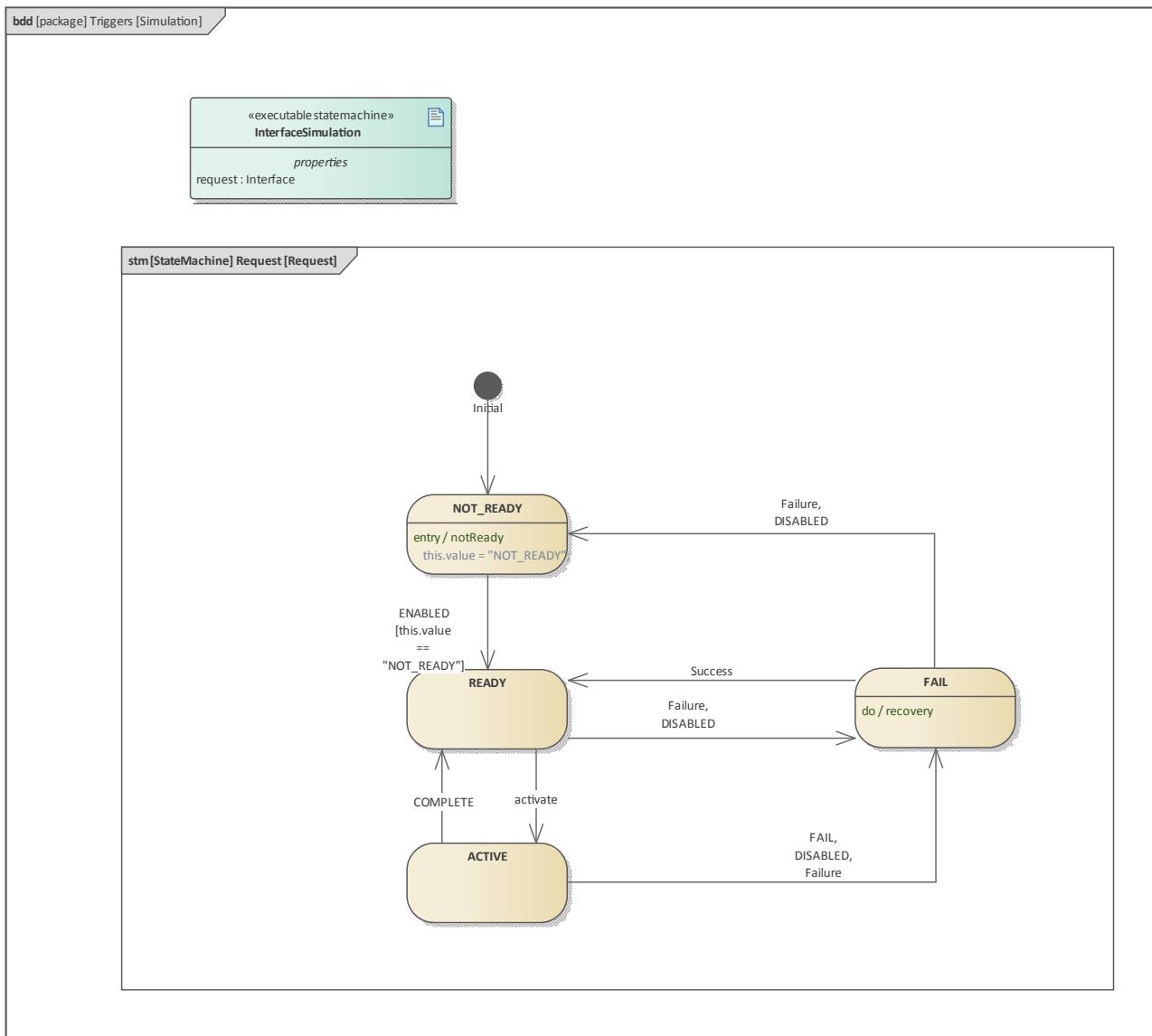


Figure 7: Simulation

Triggers

Package in package 'Interfaces'

Triggers
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

Availability

Package in package 'Triggers'

Availability
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

AVAILABLE

Trigger in package 'Availability'

AVAILABLE

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

InterfaceState

Package in package 'Triggers'

InterfaceState
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

DISABLED

Trigger in package 'InterfaceState'

DISABLED
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

ENABLED

Trigger in package 'InterfaceState'

ENABLED
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Recovery

Package in package 'Triggers'

Recovery
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

Failure

Trigger in package 'Recovery'

Failure
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Recovery

Signal in package 'Recovery'

Recovery
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Success

Trigger in package 'Recovery'

Success
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Response

Package in package 'Triggers'

Response
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

Failure

Trigger in package 'Response'

Failure
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Response

Signal in package 'Response'

Response
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

Success

Trigger in package 'Response'

Success
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

System

Package in package 'Triggers'

System
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

Failure

Trigger in package 'System'

Failure
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

System

Signal in package 'System'

System
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

InterfaceSimulation

Artifact «executable statemachine» in package 'Triggers'

InterfaceSimulation
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

STRUCTURAL PART OF InterfaceSimulation
request : Property

request

Property owned by 'InterfaceSimulation', in package 'Triggers'

request
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

Request

UMLDiagram in package 'Triggers'

Request
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019
Extends

Interface

Block «block» in package 'Interfaces'

Interface
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 12/19/2019

ELEMENTS OWNED BY Interface	
	Request : StateMachine «block»
	Response : StateMachine «block»

Request

StateMachine owned by 'Interface', in package 'Interfaces'

Request
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

ELEMENTS OWNED BY Request	
	ACTIVE : State
	FAIL : State
	NOT_READY : State
	READY : State
	Initial : Initial State
	activate : Trigger
	ACTIVE : Trigger
	FAIL : Trigger
	NOT_READY : Trigger
	READY : Trigger

Request diagram

StateMachine diagram in package 'Interfaces'

Request
Version 1.0
ssingh created on 10/1/2019. Last modified 10/3/2019

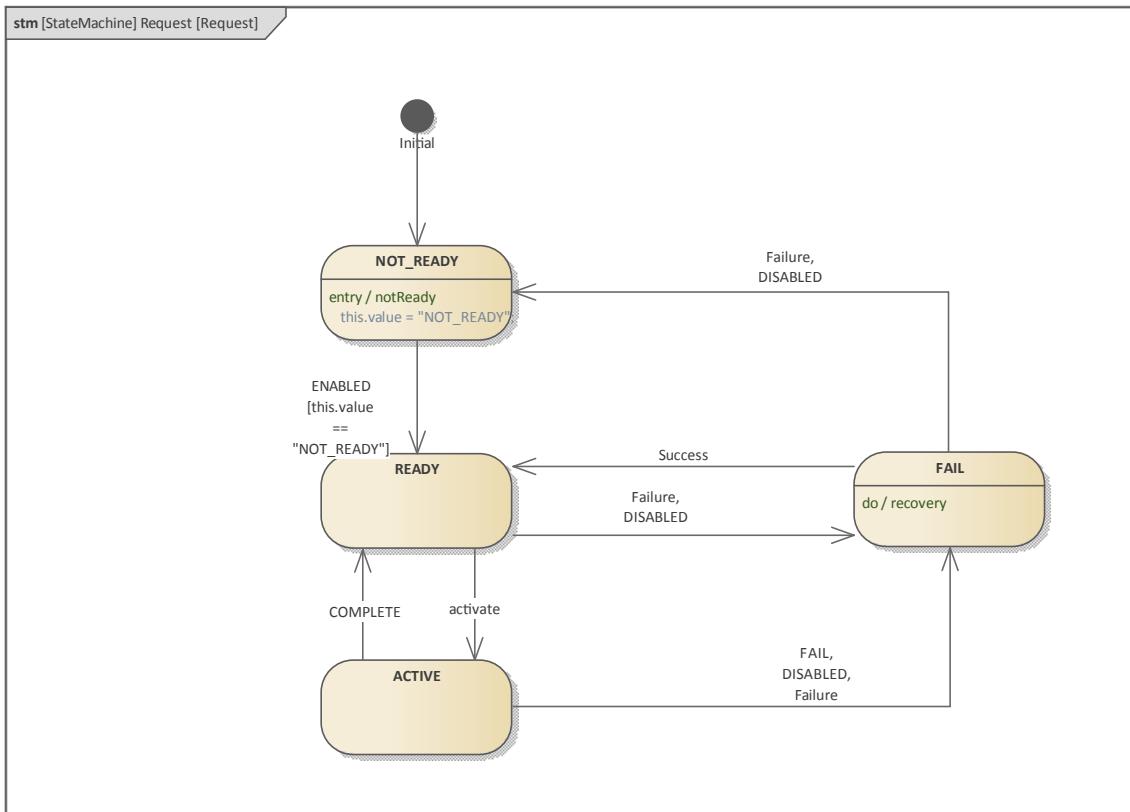


Figure 8: Request

ACTIVE

State owned by 'Request', in package 'Interfaces'

ACTIVE
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

OUTGOING BEHAVIORAL RELATIONSHIPS
<p>↳ Transition from ACTIVE to FAIL</p> <p>Triggers:</p> <ul style="list-style-type: none"> FAIL Change RESPONSE DISABLED Change INTERFACE_STATE Failure Signal System
<p>↳ Transition from ACTIVE to READY</p> <p>Triggers:</p>

OUTGOING BEHAVIORAL RELATIONSHIPS

COMPLETE Change RESPONSE

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from READY to ACTIVE

Triggers:
activate Call

FAIL*State owned by 'Request', in package 'Interfaces'*

FAIL

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019**OUTGOING BEHAVIORAL RELATIONSHIPS**

↳ Transition from FAIL to NOT_READY

Triggers:
Failure Signal Recovery
DISABLED Change INTERFACE_STATE

↳ Transition from FAIL to READY

Triggers:
Success Signal Recovery

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from ACTIVE to FAIL

Triggers:
FAIL Change RESPONSE
DISABLED Change INTERFACE_STATE
Failure Signal System

⇒ Transition from READY to FAIL

Triggers:
Failure Signal System
DISABLED Change INTERFACE_STATE

OPERATIONS

_recovery () : do Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

NOT_READY

State owned by 'Request', in package 'Interfaces'

NOT_READY

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

OUTGOING BEHAVIORAL RELATIONSHIPS

↳ Transition from NOT_READY to READY
Guard: `this.value == "NOT_READY"`

Triggers:
ENABLED Change INTERFACE_STATE

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from Initial to NOT_READY

⇒ Transition from FAIL to NOT_READY

Triggers:
Failure Signal Recovery
DISABLED Change INTERFACE_STATE

OPERATIONS

◆ notReady () : entry Public

Behavior: `this.value = "NOT_READY";`

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

READY

State owned by 'Request', in package 'Interfaces'

READY

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

OUTGOING BEHAVIORAL RELATIONSHIPS

↳ Transition from READY to FAIL

Triggers:
Failure Signal System
DISABLED Change INTERFACE_STATE

↳ Transition from READY to ACTIVE

OUTGOING BEHAVIORAL RELATIONSHIPS
Triggers: activate Call
INCOMING BEHAVIORAL RELATIONSHIPS
<p>⇒ Transition from NOT_READY to READY Guard: this.value == "NOT_READY"</p> <p>Triggers: ENABLED Change INTERFACE_STATE</p>
<p>⇒ Transition from ACTIVE to READY</p> <p>Triggers: COMPLETE Change RESPONSE</p>
<p>⇒ Transition from FAIL to READY</p> <p>Triggers: Success Signal Recovery</p>

Initial

Initial State owned by 'Request', in package 'Interfaces'

OUTGOING BEHAVIORAL RELATIONSHIPS
↳ Transition from Initial to NOT_READY

activate

Trigger owned by 'Request', in package 'Interfaces'

activate
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

ACTIVE

Trigger owned by 'Request', in package 'Interfaces'

ACTIVE
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

FAIL

Trigger owned by 'Request', in package 'Interfaces'

FAIL

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

NOT_READY

Trigger owned by 'Request', in package 'Interfaces'

NOT_READY

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

READY

Trigger owned by 'Request', in package 'Interfaces'

READY

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

Response

StateMachine owned by 'Interface', in package 'Interfaces'

Response

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/3/2019

ELEMENTS OWNED BY Response	
	ACTIVE : State
	COMPLETE : State
	FAIL : State
	NOT_READY : State
	READY : State
	Initial : Initial State
	COMPLETE : Trigger
	FAIL : Trigger

Response diagram

StateMachine diagram in package 'Interfaces'

Response
Version 1.0
ssingh created on 10/1/2019. Last modified 10/3/2019

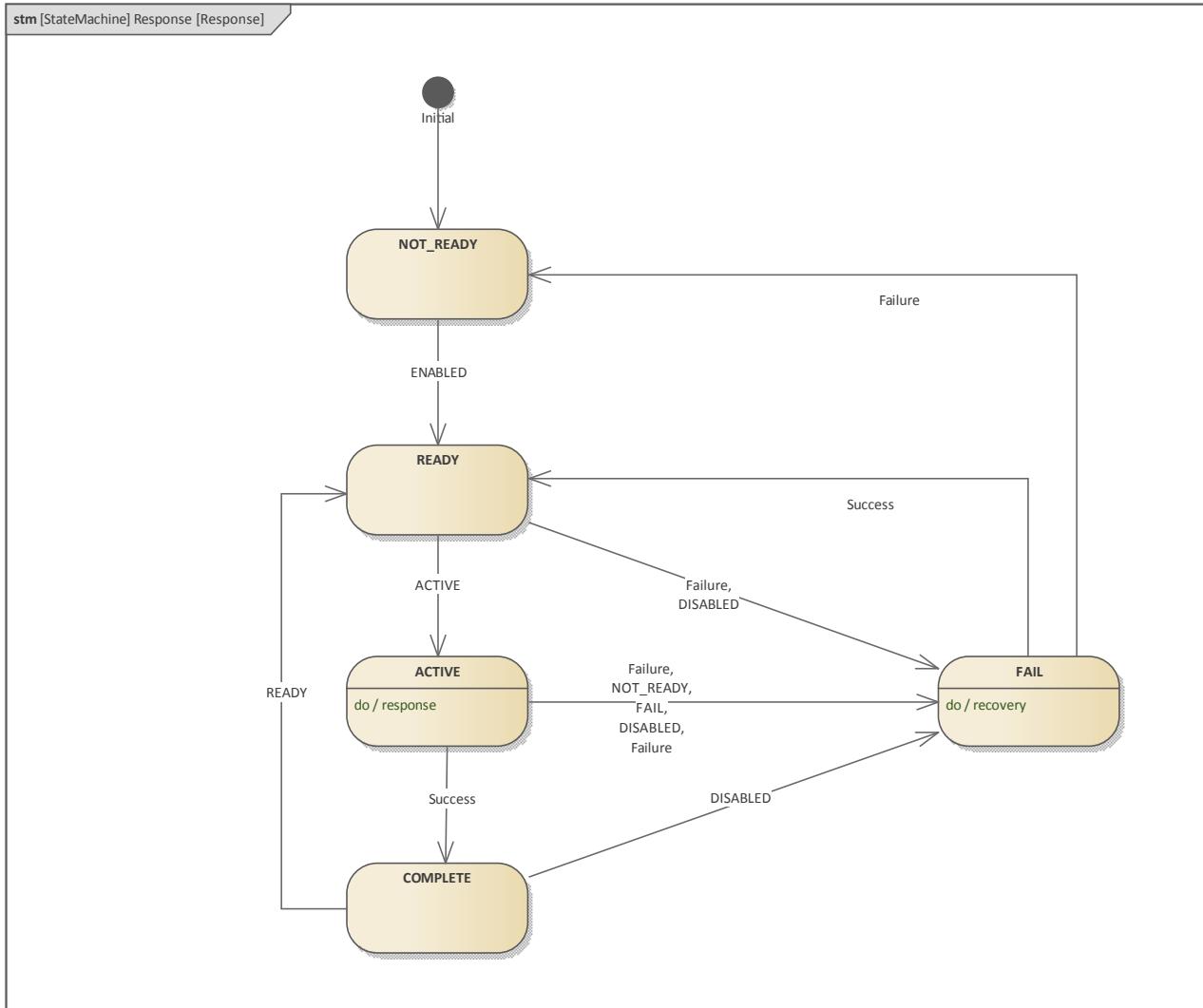


Figure 9: Response

ACTIVE

State owned by 'Response', in package 'Interfaces'

ACTIVE
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

OUTGOING BEHAVIORAL RELATIONSHIPS
<p>↳ Transition from ACTIVE to COMPLETE</p> <p>Triggers:</p> <p>Success Signal Response</p>

OUTGOING BEHAVIORAL RELATIONSHIPS
<p>↳ Transition from ACTIVE to FAIL</p> <p>Triggers:</p> <ul style="list-style-type: none"> Failure Signal Response NOT_READY Change REQUEST FAIL Change REQUEST DISABLED Change INTERFACE_STATE Failure Signal System

INCOMING BEHAVIORAL RELATIONSHIPS
<p>⇒ Transition from READY to ACTIVE</p> <p>Triggers:</p> <ul style="list-style-type: none"> ACTIVE Change REQUEST

OPERATIONS
<p>◆ response () : do Public</p> <p>[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]</p>

COMPLETE

State owned by 'Response', in package 'Interfaces'

COMPLETE
Version 1.0 Phase 1.0 Proposed
singh created on 10/1/2019. Last modified 10/1/2019

OUTGOING BEHAVIORAL RELATIONSHIPS
<p>↳ Transition from COMPLETE to READY</p> <p>Triggers:</p> <ul style="list-style-type: none"> READY Change REQUEST
<p>↳ Transition from COMPLETE to FAIL</p> <p>Triggers:</p> <ul style="list-style-type: none"> DISABLED Change INTERFACE_STATE

INCOMING BEHAVIORAL RELATIONSHIPS
<p>⇒ Transition from ACTIVE to COMPLETE</p> <p>Triggers:</p> <ul style="list-style-type: none"> Success Signal Response

FAIL

State owned by 'Response', in package 'Interfaces'

FAIL

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

OUTGOING BEHAVIORAL RELATIONSHIPS

↳ Transition from FAIL to NOT_READY

Triggers:
Failure Signal Recovery

↳ Transition from FAIL to READY

Triggers:
Success Signal Recovery

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from ACTIVE to FAIL

Triggers:
Failure Signal Response
NOT_READY Change REQUEST
FAIL Change REQUEST
DISABLED Change INTERFACE_STATE
Failure Signal System

⇒ Transition from COMPLETE to FAIL

Triggers:
DISABLED Change INTERFACE_STATE

⇒ Transition from READY to FAIL

Triggers:
Failure Signal System
DISABLED Change INTERFACE_STATE

OPERATIONS

◆ recovery () : do Public

[Is static False. Is abstract False. Is return array False. Is query False. Is synchronized False.]

NOT_READY

State owned by 'Response', in package 'Interfaces'

NOT_READY

OUTGOING BEHAVIORAL RELATIONSHIPS

↳ Transition from NOT_READY to READY

Triggers:
ENABLED Change INTERFACE_STATE

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from Initial to NOT_READY

⇒ Transition from FAIL to NOT_READY

Triggers:
Failure Signal Recovery

READY

State owned by 'Response', in package 'Interfaces'

READY

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019**OUTGOING BEHAVIORAL RELATIONSHIPS**

↳ Transition from READY to ACTIVE

Triggers:
ACTIVE Change REQUEST

↳ Transition from READY to FAIL

Triggers:
Failure Signal System
DISABLED Change INTERFACE_STATE

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from COMPLETE to READY

Triggers:
READY Change REQUEST

⇒ Transition from NOT_READY to READY

Triggers:
ENABLED Change INTERFACE_STATE

INCOMING BEHAVIORAL RELATIONSHIPS

⇒ Transition from FAIL to READY

Triggers:
Success Signal Recovery

Initial

Initial State owned by 'Response', in package 'Interfaces'

OUTGOING BEHAVIORAL RELATIONSHIPS

⇐ Transition from Initial to NOT_READY

COMPLETE

Trigger owned by 'Response', in package 'Interfaces'

COMPLETE
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

FAIL

Trigger owned by 'Response', in package 'Interfaces'

FAIL
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/1/2019. Last modified 10/1/2019

MetaModel

Package in package 'Model'

MetaModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/30/2019

MTConnectDevices diagram

SysML Block Definition diagram in package 'MetaModel'

MTConnectDevices
Version 1.0
ssingh created on 9/26/2019. Last modified 11/4/2019

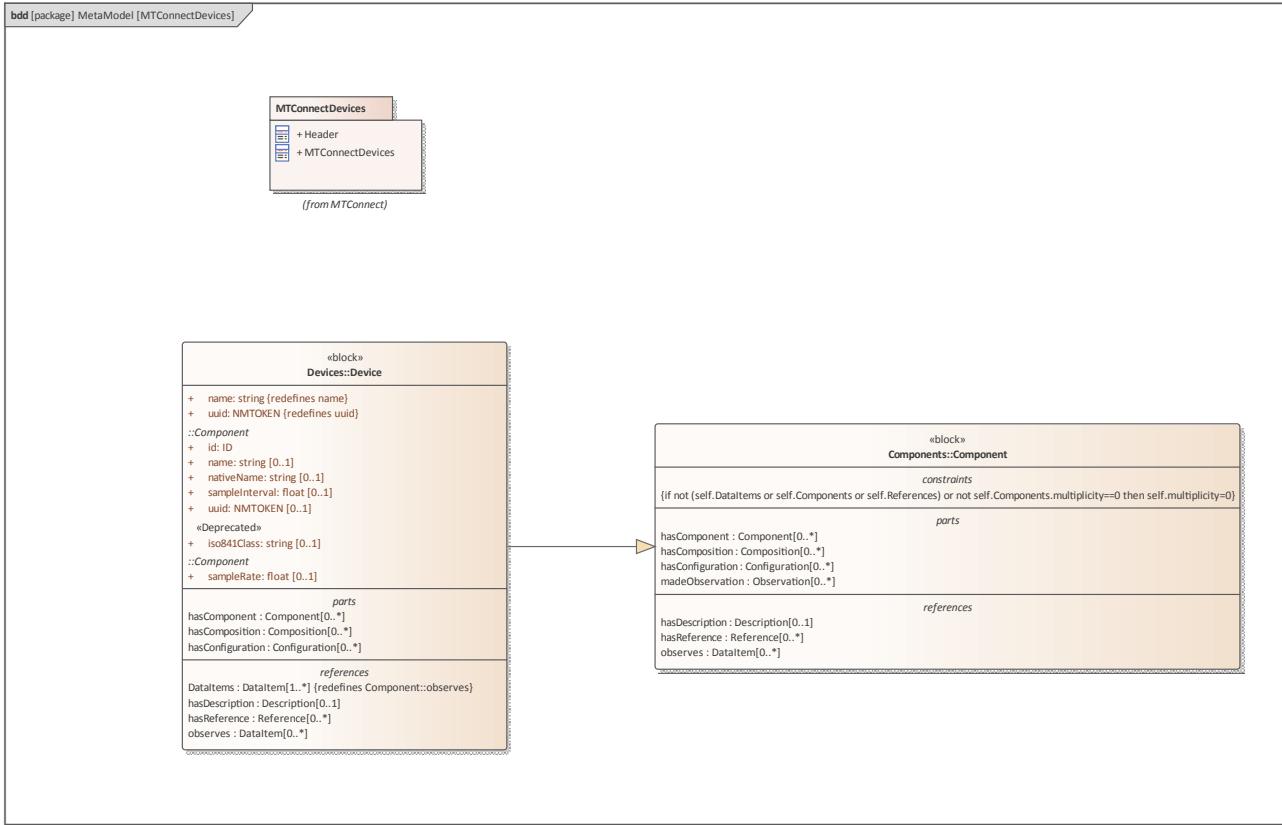


Figure 10: MTConnectDevices

MetaModel

Package in package 'Model'

MetaModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/30/2019

Device

Block «block» in package 'Devices'

Device
Version 1.0 Phase 1.0 Proposed

STRUCTURAL PART OF Device
⚙ DataItems : Property
⚙ hasComponent : Property
⚙ hasComposition : Property
⚙ hasConfiguration : Property
⚙ hasDescription : Property
⚙ hasReference : Property
⚙ observes : Property

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Generalization from «block» Device to «block» Component [Direction is 'Source -> Destination'.]
↳ Aggregation from «block» Device to «block» MTConnectDevices [Name is Devices. Direction is 'Destination -> Source'.]

ATTRIBUTES
◆ iso841Class : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ name : string Public [Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public [Is static True. Containment is Not Specified.]

DataItems

Property owned by 'Device', in package 'Devices'

DataItems
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/14/2019

hasComponent

Property owned by 'Device', in package 'Devices'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Device', in package 'Devices'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Device', in package 'Devices'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Device', in package 'Devices'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Device', in package 'Devices'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

observes

Property owned by 'Device', in package 'Devices'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

Component

Block «block» in package 'Components'

Component
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/16/2019

STRUCTURAL PART OF Component
⌚ hasComponent : Property
⌚ hasComposition : Property
⌚ hasConfiguration : Property
⌚ hasDescription : Property
⌚ hasReference : Property
⌚ madeObservation : Property
⌚ observes : Property

CONSTRAINTS
<p>⌚ Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0</p> <p style="text-align: right;">[Mandatory, Weight is 0.]</p>

OUTGOING STRUCTURAL RELATIONSHIPS
<p>⬅ Aggregation from «block» Component to «block» Component</p> <p style="text-align: right;">[Name is Components. Direction is 'Bi-Directional'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS
<p>➡ Generalization from «block» Composition to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Generalization from «block» Actuator to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Generalization from «block» Controller to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Aggregation from «block» DataItem to «block» Component</p> <p style="text-align: right;">[Name is DataItems. Direction is 'Bi-Directional'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Auxiliaries to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Observation to «block» Component	[Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component	[Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component	[Name is Compositions. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ nativeName : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleInterval : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Destination -> Source) Description	
Source: Public hasDescription (Block) Description «block» Cardinality: [0..1]	Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

MTConnectDevices

Package in package 'MTConnect'

MTConnectDevices
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

Components

Package in package 'MetaModel'

Components
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Components diagram

SysML Block Definition diagram in package 'Components'

Components
Version 1.0

ssingh created on 9/26/2019. Last modified 10/21/2019

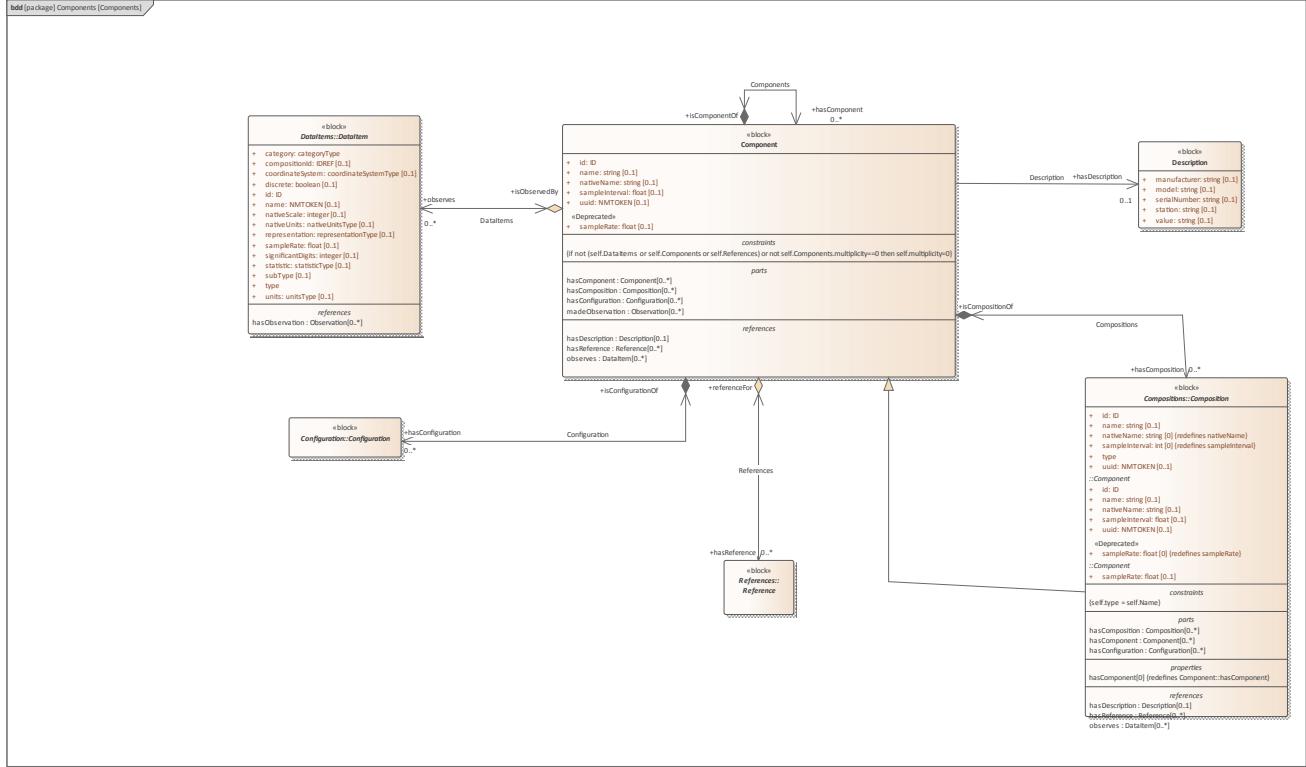


Figure 11: Components

Components

Package in package 'MetaModel'

Components

Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

DataItem

Block «block» in package 'DataItems'

DataItem

Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/14/2019

STRUCTURAL PART OF DataItem
<p>hasObservation : Property</p>

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Aggregation from «block» DataItem to «block» Component	[Name is DataItems. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Condition to «block» DataItem	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Sample to «block» DataItem	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Event to «block» DataItem	[Direction is 'Source -> Destination'.]
ATTRIBUTES	
◆ category : categoryType Public	[Is static True. Containment is Not Specified.]
◆ compositionId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ coordinateSystem : coordinateSystemType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ discrete : boolean Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeScale : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ representation : representationType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ statistic : statisticType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ subType : Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✓ Association (direction: Source -> Destination) Filters	
Source: Public (Block) DataItem «block»	Target: Public hasFilter (Block) Filter «block» Cardinality: [0..*]
✓ Association (direction: Bi-Directional) DataItem	
Source: Public madeForDataItem (Block) DataItem «block» Cardinality: [1]	Target: Public hasObservation (Block) Observation «block» Cardinality: [0..*]
✓ Association (direction: Source -> Destination) ResetTrigger	
Source: Public (Block) DataItem «block»	Target: Public hasResetTrigger (Block) ResetTrigger «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination) InitialValue	

ASSOCIATIONS		
Source: Public (Block) DataItem «block»	Target: Public hasInitialValue (Block) initialValue «block»	Cardinality: [0..1]
Association (direction: Source -> Destination) Constraints		
Source: Public (Block) DataItem «block»	Target: Public hasConstraint (Block) Constraints «block»	Cardinality: [0..1]
Association (direction: Source -> Destination) Source		
Source: Public (Block) DataItem «block»	Target: Public hasSource (Block) Source «block»	Cardinality: [0..1]

hasObservation

Property owned by 'DataItem', in package 'DataItems'

hasObservation
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/10/2019. Last modified 10/21/2019

Composition

Block «block» in package 'Compositions'

Composition
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 9/30/2019. Last modified 10/17/2019

STRUCTURAL PART OF Composition	
hasComponent : Property	
hasComponent : Property	
hasComposition : Property	
hasConfiguration : Property	
hasDescription : Property	
hasReference : Property	
observes : Property	

CONSTRAINTS
<p>.Invariant. self.type = self.Name [Approved, Weight is 0.]</p>
OUTGOING STRUCTURAL RELATIONSHIPS
<p>↳ Generalization from «block» Composition to «block» Component [Direction is 'Source -> Destination'.]</p>
<p>↳ Aggregation from «block» Composition to «block» Component [Name is Compositions. Direction is 'Bi-Directional'.]</p>
INCOMING STRUCTURAL RELATIONSHIPS
<p>⇒ Generalization from «block» Motor to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Vat to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Tensioner to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Compressor to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» PowerSupply to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Oil to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» StorageBattery to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Belt to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» Clamp to «block» Composition [Direction is 'Source -> Destination'.]</p>
<p>⇒ Generalization from «block» CircuitBreaker to «block» Composition [Direction is 'Source -> Destination'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Pulley to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chuck to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Water to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chute to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Ballscrew to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Hopper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ExtrusionUnit to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Actuator to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Valve to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» SensingElement to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Table to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Wire to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Pump to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Spreader to «block» Composition	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Chopper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Amplifier to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Fan to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Filter to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Galvanometer to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Gripper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Door to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Drain to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Switch to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Brake to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Transformer to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chain to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Encoder to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Reel to «block» Composition	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» ExposureUnit to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Tank to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» LinearPositionFeedback to «block» Composition	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleInterval : int Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

hasComponent

Property owned by 'Composition', in package 'Compositions'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/10/2019. Last modified 10/29/2019

hasComponent

Property owned by 'Composition', in package 'Compositions'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Composition', in package 'Compositions'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Composition', in package 'Compositions'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Composition', in package 'Compositions'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Composition', in package 'Compositions'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

observes

Property owned by 'Composition', in package 'Compositions'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

Configuration

Block «block» in package 'Configuration'

Configuration
Version 1.0 Phase 1.0 Proposed

ssingh created on 10/4/2019. Last modified 10/21/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Aggregation from «block» Configuration to «block» Component

[Name is Configuration. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» CoordinateSystems to «block» Configuration

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Relationships to «block» Configuration

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Specifications to «block» Configuration

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Motion to «block» Configuration

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» SensorConfiguration to «block» Configuration

[Direction is 'Source -> Destination'.]

Reference

Block «block» in package 'References'

Reference

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019**OUTGOING STRUCTURAL RELATIONSHIPS**

↳ Aggregation from «block» Reference to «block» Component

[Name is References. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» ComponentRef to «block» Reference

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» DataItemRef to «block» Reference

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ idRef : ID Public

ATTRIBUTES	[Is static True. Containment is Not Specified.]
◆ name : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ComponentElements

Package in package 'Components'

ComponentElements
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ComponentElements diagram

SysML Block Definition diagram in package 'ComponentElements'

ComponentElements
Version 1.0
ssingh created on 10/29/2019. Last modified 12/19/2019

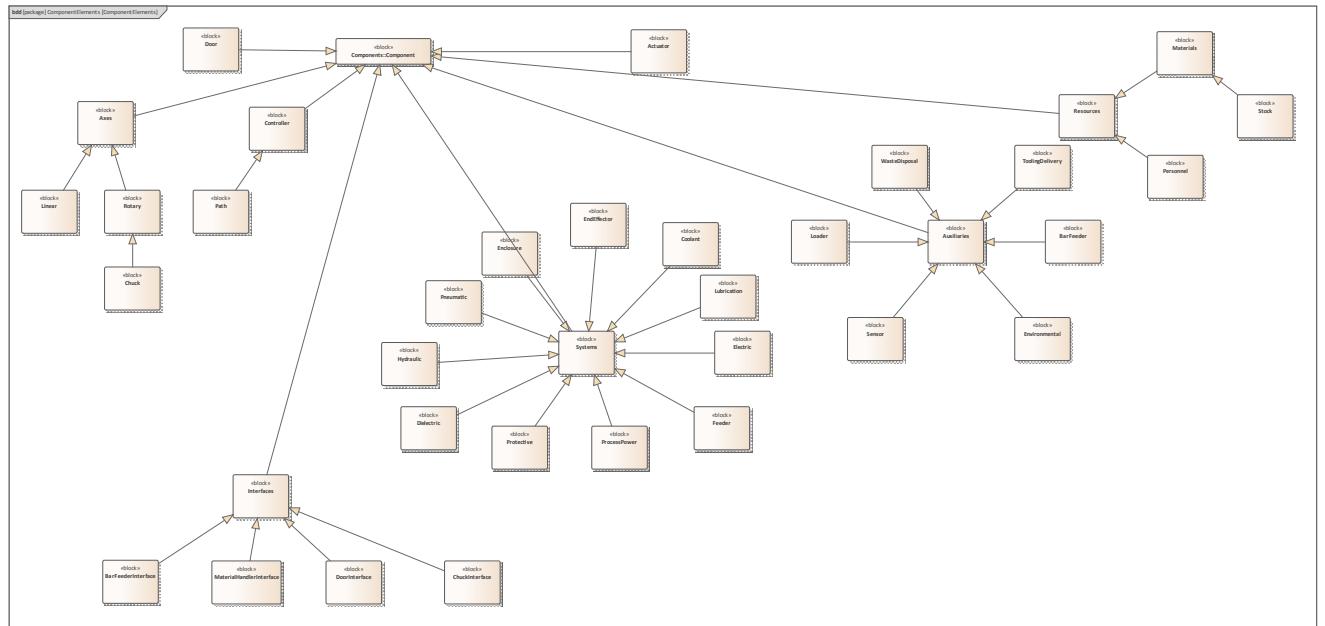


Figure 12: ComponentElements

Component

Block «block» in package 'Components'

Component
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/16/2019

STRUCTURAL PART OF Component
⌚ hasComponent : Property
⌚ hasComposition : Property
⌚ hasConfiguration : Property
⌚ hasDescription : Property
⌚ hasReference : Property
⌚ madeObservation : Property
⌚ observes : Property

CONSTRAINTS
<p>⌚ Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0</p> <p style="text-align: right;">[Mandatory, Weight is 0.]</p>

OUTGOING STRUCTURAL RELATIONSHIPS
<p>⬅ Aggregation from «block» Component to «block» Component</p> <p style="text-align: right;">[Name is Components. Direction is 'Bi-Directional'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS
<p>➡ Generalization from «block» Composition to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Generalization from «block» Actuator to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Generalization from «block» Controller to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>
<p>➡ Aggregation from «block» DataItem to «block» Component</p> <p style="text-align: right;">[Name is DataItems. Direction is 'Bi-Directional'.]</p>
<p>➡ Generalization from «block» Auxiliaries to «block» Component</p> <p style="text-align: right;">[Direction is 'Source -> Destination'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» Observation to «block» Component	[Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component	[Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component	[Name is Compositions. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ sampleInterval : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Destination -> Source) Description	
Source: Public hasDescription (Block) Description «block» Cardinality: [0..1]	Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

ComponentElements

Package in package 'Components'

ComponentElements
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Actuator

Block «block» in package 'ComponentElements'

Actuator
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Actuator to «block» Component

[Direction is 'Source -> Destination'.]

Auxiliaries

Block «block» in package 'ComponentElements'

Auxiliaries
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Auxiliaries to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» ToolingDelivery to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» BarFeeder to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» WasteDisposal to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Loader to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Environmental to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Sensor to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

Axes

Block «block» in package 'ComponentElements'

Axes
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Axes to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS
⇒ Generalization from «block» Linear to «block» Axes [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Rotary to «block» Axes [Direction is 'Source -> Destination'.]

BarFeeder

Block «block» in package 'ComponentElements'

BarFeeder
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Generalization from «block» BarFeeder to «block» Auxiliaries [Direction is 'Source -> Destination'.]

BarFeederInterface

Block «block» in package 'ComponentElements'

BarFeederInterface
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Generalization from «block» BarFeederInterface to «block» Interfaces [Direction is 'Source -> Destination'.]

Chuck

Block «block» in package 'ComponentElements'

Chuck
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Generalization from «block» Chuck to «block» Rotary [Direction is 'Source -> Destination'.]

ChuckInterface

Block «block» in package 'ComponentElements'

ChuckInterface
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ChuckInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

Controller

Block «block» in package 'ComponentElements'

Controller
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Controller to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Path to «block» Controller

[Direction is 'Source -> Destination'.]

Coolant

Block «block» in package 'ComponentElements'

Coolant
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Coolant to «block» Systems

[Direction is 'Source -> Destination'.]

Dielectric

Block «block» in package 'ComponentElements'

Dielectric
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Dielectric to «block» Systems

[Direction is 'Source -> Destination'.]

Door

Block «block» in package 'ComponentElements'

Door
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Door to «block» Component

[Direction is 'Source -> Destination'.]

DoorInterface

Block «block» in package 'ComponentElements'

DoorInterface
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» DoorInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

Electric

Block «block» in package 'ComponentElements'

Electric
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Electric to «block» Systems

[Direction is 'Source -> Destination'.]

Enclosure

Block «block» in package 'ComponentElements'

Enclosure
Version 1.0 Phase 1.0 Proposed

ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Enclosure to «block» Systems

[Direction is 'Source -> Destination'.]

EndEffector

Block «block» in package 'ComponentElements'

EndEffector

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» EndEffector to «block» Systems

[Direction is 'Source -> Destination'.]

Environmental

Block «block» in package 'ComponentElements'

Environmental

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Environmental to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

Feeder

Block «block» in package 'ComponentElements'

Feeder

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Feeder to «block» Systems

[Direction is 'Source -> Destination'.]

Hydraulic

Block «block» in package 'ComponentElements'

Hydraulic

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019**OUTGOING STRUCTURAL RELATIONSHIPS** Generalization from «block» Hydraulic to «block» Systems

[Direction is 'Source -> Destination'.]

Interfaces

Block «block» in package 'ComponentElements'

Interfaces

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019**OUTGOING STRUCTURAL RELATIONSHIPS** Generalization from «block» Interfaces to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS Generalization from «block» MaterialHandlerInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

 Generalization from «block» ChuckInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

 Generalization from «block» DoorInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

 Generalization from «block» BarFeederInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

Linear

Block «block» in package 'ComponentElements'

Linear

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019**OUTGOING STRUCTURAL RELATIONSHIPS** Generalization from «block» Linear to «block» Axes

[Direction is 'Source -> Destination'.]

Loader

Block «block» in package 'ComponentElements'

Loader
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Loader to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

Lubrication

Block «block» in package 'ComponentElements'

Lubrication
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Lubrication to «block» Systems

[Direction is 'Source -> Destination'.]

MaterialHandlerInterface

Block «block» in package 'ComponentElements'

MaterialHandlerInterface
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» MaterialHandlerInterface to «block» Interfaces

[Direction is 'Source -> Destination'.]

Materials

Block «block» in package 'ComponentElements'

Materials
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Materials to «block» Resources

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Stock to «block» Materials

[Direction is 'Source -> Destination'.]

Path

Block «block» in package 'ComponentElements'

Path

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

← Generalization from «block» Path to «block» Controller

[Direction is 'Source -> Destination'.]

Personnel

Block «block» in package 'ComponentElements'

Personnel

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

← Generalization from «block» Personnel to «block» Resources

[Direction is 'Source -> Destination'.]

Pneumatic

Block «block» in package 'ComponentElements'

Pneumatic

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

← Generalization from «block» Pneumatic to «block» Systems

[Direction is 'Source -> Destination'.]

ProcessPower

Block «block» in package 'ComponentElements'

ProcessPower

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ProcessPower to «block» Systems

[Direction is 'Source -> Destination'.]

Protective

Block «block» in package 'ComponentElements'

Protective
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Protective to «block» Systems

[Direction is 'Source -> Destination'.]

Resources

Block «block» in package 'ComponentElements'

Resources
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Resources to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Personnel to «block» Resources

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Materials to «block» Resources

[Direction is 'Source -> Destination'.]

Rotary

Block «block» in package 'ComponentElements'

Rotary
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Rotary to «block» Axes

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Chuck to «block» Rotary

[Direction is 'Source -> Destination'.]

Sensor

Block «block» in package 'ComponentElements'

Sensor
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Sensor to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

Stock

Block «block» in package 'ComponentElements'

Stock
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Stock to «block» Materials

[Direction is 'Source -> Destination'.]

Systems

Block «block» in package 'ComponentElements'

Systems
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Systems to «block» Component

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Feeder to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Coolant to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Enclosure to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ProcessPower to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Electric to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Protective to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Dielectric to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» EndEffector to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Pneumatic to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Hydraulic to «block» Systems	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Lubrication to «block» Systems	[Direction is 'Source -> Destination'.]

ToolingDelivery

Block «block» in package 'ComponentElements'

ToolingDelivery
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ToolingDelivery to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

WasteDisposal

Block «block» in package 'ComponentElements'

WasteDisposal
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» WasteDisposal to «block» Auxiliaries

[Direction is 'Source -> Destination'.]

Compositions

Package in package 'Components'

Compositions
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Compositions diagram

SysML Block Definition diagram in package 'Compositions'

Compositions
Version 1.0
ssingh created on 10/9/2019. Last modified 10/29/2019

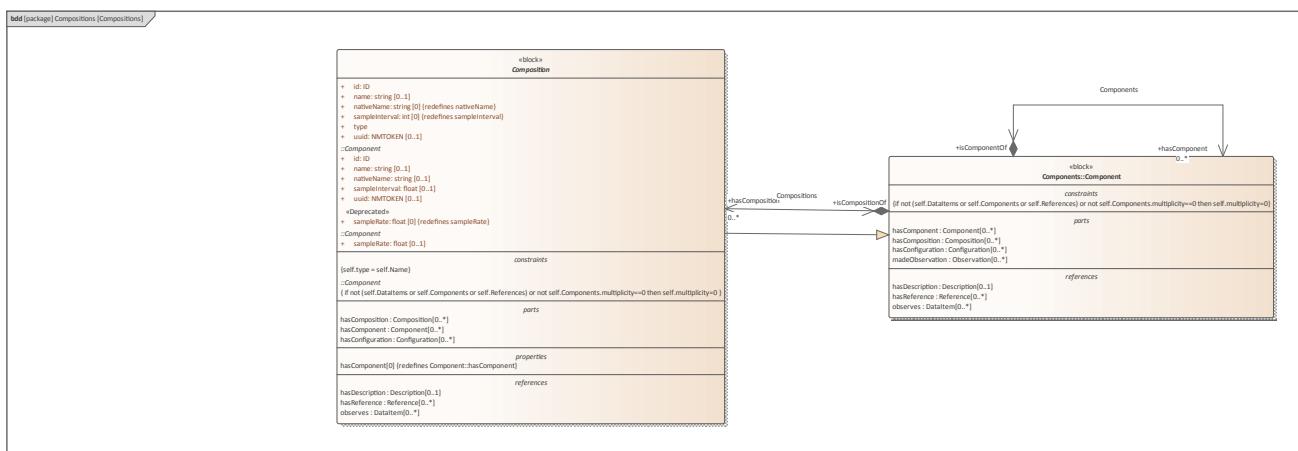


Figure 13: Compositions

Component

Block «block» in package 'Components'

Component
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/16/2019

STRUCTURAL PART OF Component
hasComponent : Property
hasComposition : Property
hasConfiguration : Property
hasDescription : Property
hasReference : Property
madeObservation : Property

STRUCTURAL PART OF Component
⌚ observes : Property
CONSTRAINTS
⌚ Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0 [Mandatory, Weight is 0.]
OUTGOING STRUCTURAL RELATIONSHIPS
↳ Aggregation from «block» Component to «block» Component [Name is Components. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS
⇒ Generalization from «block» Composition to «block» Component [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Actuator to «block» Component [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Controller to «block» Component [Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» DataItem to «block» Component [Name is DataItems. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Auxiliaries to «block» Component [Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Observation to «block» Component [Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component [Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component [Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component [Name is Compositions. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleInterval : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	

ASSOCIATIONS

 Association (direction: Destination -> Source) Description

Source: Public hasDescription (Block) Description «block»
Cardinality: [0..1]

Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed

ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

Compositions

Package in package 'Components'

Compositions
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

CompositionType diagram

SysML Block Definition diagram in package 'Compositions'

CompositionType
Version 1.0
ssingh created on 10/29/2019. Last modified 10/29/2019

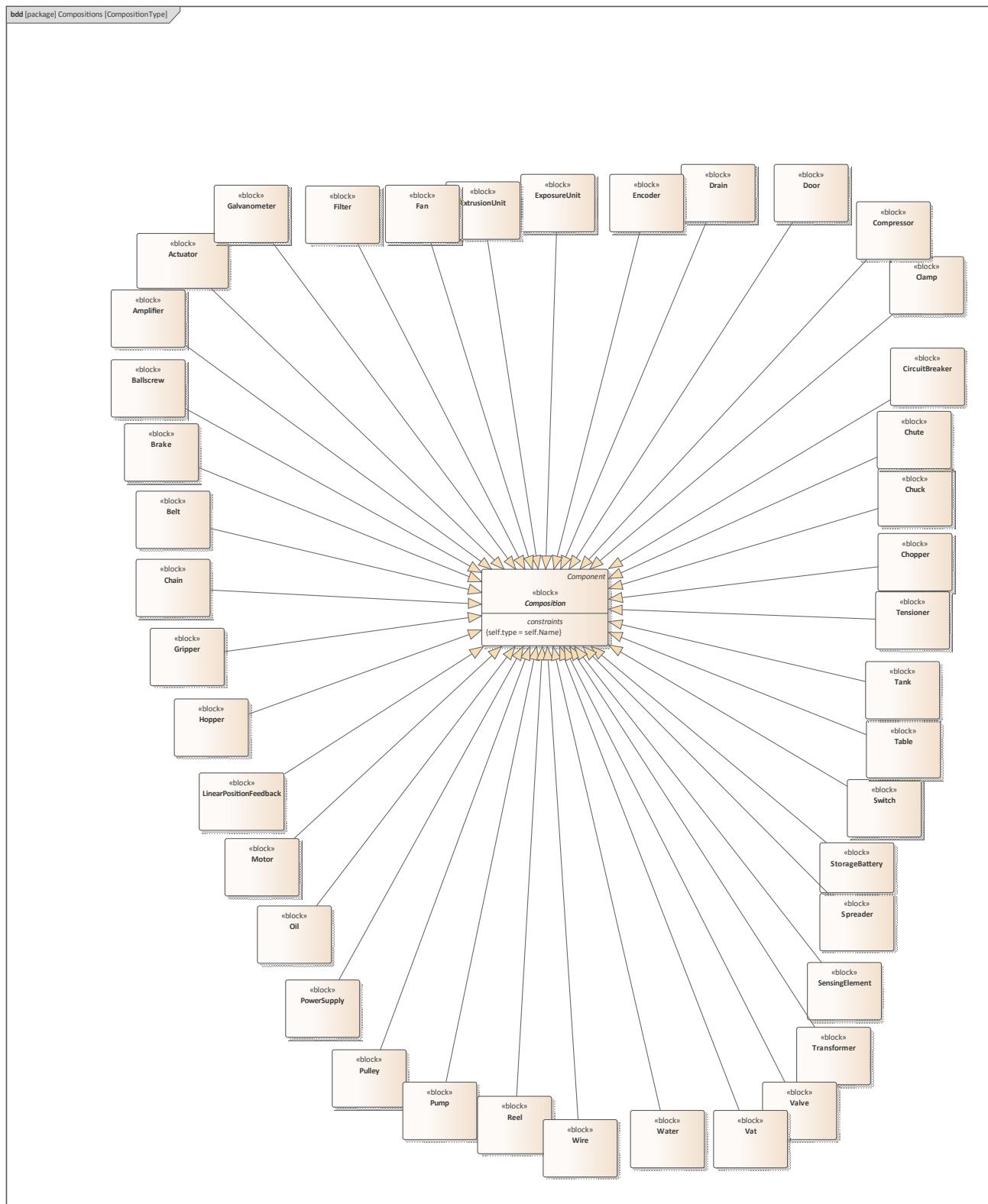


Figure 14: CompositionType

Compositions

Package in package 'Components'

Compositions
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Actuator

Block «block» in package 'Compositions'

Actuator
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Actuator to «block» Composition

[Direction is 'Source -> Destination'.]

Amplifier

Block «block» in package 'Compositions'

Amplifier
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Amplifier to «block» Composition

[Direction is 'Source -> Destination'.]

Ballscrew

Block «block» in package 'Compositions'

Ballscrew
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Ballscrew to «block» Composition

[Direction is 'Source -> Destination'.]

Belt

Block «block» in package 'Compositions'

Belt
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Belt to «block» Composition

[Direction is 'Source -> Destination'.]

Brake

Block «block» in package 'Compositions'

Brake

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Brake to «block» Composition

[Direction is 'Source -> Destination'.]

Chain

Block «block» in package 'Compositions'

Chain

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Chain to «block» Composition

[Direction is 'Source -> Destination'.]

Chopper

Block «block» in package 'Compositions'

Chopper

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Chopper to «block» Composition

[Direction is 'Source -> Destination'.]

Chuck

Block «block» in package 'Compositions'

Chuck

Version 1.0 Phase 1.0 Proposed

ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Chuck to «block» Composition

[Direction is 'Source -> Destination'.]

Chute

Block «block» in package 'Compositions'

Chute

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Chute to «block» Composition

[Direction is 'Source -> Destination'.]

CircuitBreaker

Block «block» in package 'Compositions'

CircuitBreaker

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» CircuitBreaker to «block» Composition

[Direction is 'Source -> Destination'.]

Clamp

Block «block» in package 'Compositions'

Clamp

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Clamp to «block» Composition

[Direction is 'Source -> Destination'.]

Composition

Block «block» in package 'Compositions'

Composition

Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/17/2019

STRUCTURAL PART OF Composition

⌚ hasComponent : Property

⌚ hasComponent : Property

⌚ hasComposition : Property

⌚ hasConfiguration : Property

⌚ hasDescription : Property

⌚ hasReference : Property

⌚ observes : Property

CONSTRAINTS

⌚ Invariant. self.type = self.Name

[Approved, Weight is 0.]

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Composition to «block» Component

[Direction is 'Source -> Destination'.]

↳ Aggregation from «block» Composition to «block» Component

[Name is Compositions. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Motor to «block» Composition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Vat to «block» Composition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Tensioner to «block» Composition

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Compressor to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» PowerSupply to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Oil to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StorageBattery to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Belt to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Clamp to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» CircuitBreaker to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Pulley to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chuck to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Water to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chute to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Ballscrew to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Hopper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ExtrusionUnit to «block» Composition	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Actuator to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Valve to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» SensingElement to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Table to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Wire to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Pump to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Spreader to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chopper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Amplifier to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Fan to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Filter to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Galvanometer to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Gripper to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Door to «block» Composition	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Drain to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Switch to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Brake to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Transformer to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Chain to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Encoder to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Reel to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ExposureUnit to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Tank to «block» Composition	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» LinearPositionFeedback to «block» Composition	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleInterval : int Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	

ATTRIBUTES	
[Is static True. Containment is Not Specified.]	
◆ sampleRate : float Public Multiplicity: ([0], Allow duplicates: 0, Is ordered: False)	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ uid : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

hasComponent

Property owned by 'Composition', in package 'Compositions'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/10/2019. Last modified 10/29/2019

hasComponent

Property owned by 'Composition', in package 'Compositions'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Composition', in package 'Compositions'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Composition', in package 'Compositions'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Composition', in package 'Compositions'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Composition', in package 'Compositions'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

observes

Property owned by 'Composition', in package 'Compositions'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

Compressor

Block «block» in package 'Compositions'

Compressor
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Compressor to «block» Composition

[Direction is 'Source -> Destination'.]

Door

Block «block» in package 'Compositions'

Door
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Door to «block» Composition

[Direction is 'Source -> Destination'.]

Drain

Block «block» in package 'Compositions'

Drain
Version 1.0 Phase 1.0 Proposed

ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Drain to «block» Composition

[Direction is 'Source -> Destination'.]

Encoder

Block «block» in package 'Compositions'

Encoder

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Encoder to «block» Composition

[Direction is 'Source -> Destination'.]

ExposureUnit

Block «block» in package 'Compositions'

ExposureUnit

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ExposureUnit to «block» Composition

[Direction is 'Source -> Destination'.]

ExtrusionUnit

Block «block» in package 'Compositions'

ExtrusionUnit

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ExtrusionUnit to «block» Composition

[Direction is 'Source -> Destination'.]

Fan

Block «block» in package 'Compositions'

Fan

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Fan to «block» Composition

[Direction is 'Source -> Destination'.]

Filter

Block «block» in package 'Compositions'

Filter

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Filter to «block» Composition

[Direction is 'Source -> Destination'.]

Galvanometer

Block «block» in package 'Compositions'

Galvanometer

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Galvanometer to «block» Composition

[Direction is 'Source -> Destination'.]

Gripper

Block «block» in package 'Compositions'

Gripper

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Gripper to «block» Composition

[Direction is 'Source -> Destination'.]

Hopper

Block «block» in package 'Compositions'

Hopper
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Hopper to «block» Composition

[Direction is 'Source -> Destination'.]

LinearPositionFeedback*Block «block» in package 'Compositions'*

LinearPositionFeedback
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» LinearPositionFeedback to «block» Composition

[Direction is 'Source -> Destination'.]

Motor*Block «block» in package 'Compositions'*

Motor
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Motor to «block» Composition

[Direction is 'Source -> Destination'.]

Oil*Block «block» in package 'Compositions'*

Oil
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Oil to «block» Composition

[Direction is 'Source -> Destination'.]

PowerSupply

Block «block» in package 'Compositions'

PowerSupply
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» PowerSupply to «block» Composition

[Direction is 'Source -> Destination'.]

Pulley

Block «block» in package 'Compositions'

Pulley
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Pulley to «block» Composition

[Direction is 'Source -> Destination'.]

Pump

Block «block» in package 'Compositions'

Pump
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Pump to «block» Composition

[Direction is 'Source -> Destination'.]

Reel

Block «block» in package 'Compositions'

Reel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Reel to «block» Composition

[Direction is 'Source -> Destination'.]

SensingElement

Block «block» in package 'Compositions'

SensingElement
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» SensingElement to «block» Composition

[Direction is 'Source -> Destination'.]

Spreader

Block «block» in package 'Compositions'

Spreader
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Spreader to «block» Composition

[Direction is 'Source -> Destination'.]

StorageBattery

Block «block» in package 'Compositions'

StorageBattery
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» StorageBattery to «block» Composition

[Direction is 'Source -> Destination'.]

Switch

Block «block» in package 'Compositions'

Switch
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Switch to «block» Composition

[Direction is 'Source -> Destination'.]

Table

Block «block» in package 'Compositions'

Table

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Table to «block» Composition

[Direction is 'Source -> Destination'.]

Tank

Block «block» in package 'Compositions'

Tank

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Tank to «block» Composition

[Direction is 'Source -> Destination'.]

Tensioner

Block «block» in package 'Compositions'

Tensioner

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Tensioner to «block» Composition

[Direction is 'Source -> Destination'.]

Transformer

Block «block» in package 'Compositions'

Transformer

Version 1.0 Phase 1.0 Proposed

ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Transformer to «block» Composition

[Direction is 'Source -> Destination'.]

Valve

Block «block» in package 'Compositions'

Valve

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Valve to «block» Composition

[Direction is 'Source -> Destination'.]

Vat

Block «block» in package 'Compositions'

Vat

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Vat to «block» Composition

[Direction is 'Source -> Destination'.]

Water

Block «block» in package 'Compositions'

Water

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Water to «block» Composition

[Direction is 'Source -> Destination'.]

Wire

Block «block» in package 'Compositions'

Wire
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Wire to «block» Composition

[Direction is 'Source -> Destination'.]

Configuration

Package in package 'Components'

Configuration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/9/2019

Configuration diagram

SysML Block Definition diagram in package 'Configuration'

Configuration
Version 1.0
ssingh created on 10/4/2019. Last modified 10/29/2019

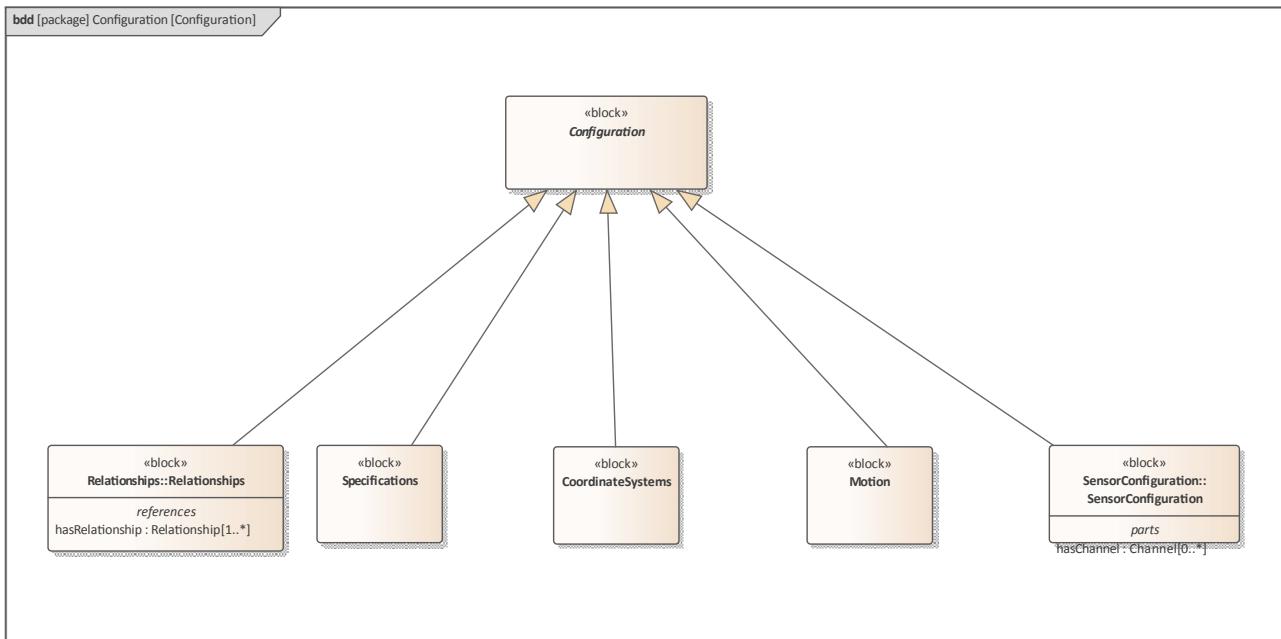


Figure 15: Configuration

Configuration

Package in package 'Components'

Configuration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/9/2019

Relationships

Block «block» in package 'Relationships'

Relationships
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/29/2019

STRUCTURAL PART OF Relationships
hasRelationship : Property

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Relationships to «block» Configuration

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Aggregation from «block» Relationship to «block» Relationships

[Name is Relationships. Direction is 'Destination -> Source'.]

hasRelationship

Property owned by 'Relationships', in package 'Relationships'

hasRelationship
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

SensorConfiguration

Block «block» in package 'SensorConfiguration'

SensorConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/29/2019

STRUCTURAL PART OF SensorConfiguration

⚙️ hasChannel : Property

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» SensorConfiguration to «block» Configuration

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Aggregation from «block» Channel to «block» SensorConfiguration

[Name is Channels. Direction is 'Bi-Directional'.]

ATTRIBUTES

◆ CalibrationDate : dateTime Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ CalibrationInitials : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ATTRIBUTES
<p>◆ FirmwareVersion : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]</p>
<p>◆ NextCalibrationDate : dateTime Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]</p>

hasChannel

Property owned by 'SensorConfiguration', in package 'SensorConfiguration'

hasChannel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Relationships

Package in package 'Configuration'

Relationships
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Relationships diagram

SysML Block Definition diagram in package 'Relationships'

Relationships
Version 1.0
ssingh created on 10/29/2019. Last modified 10/29/2019

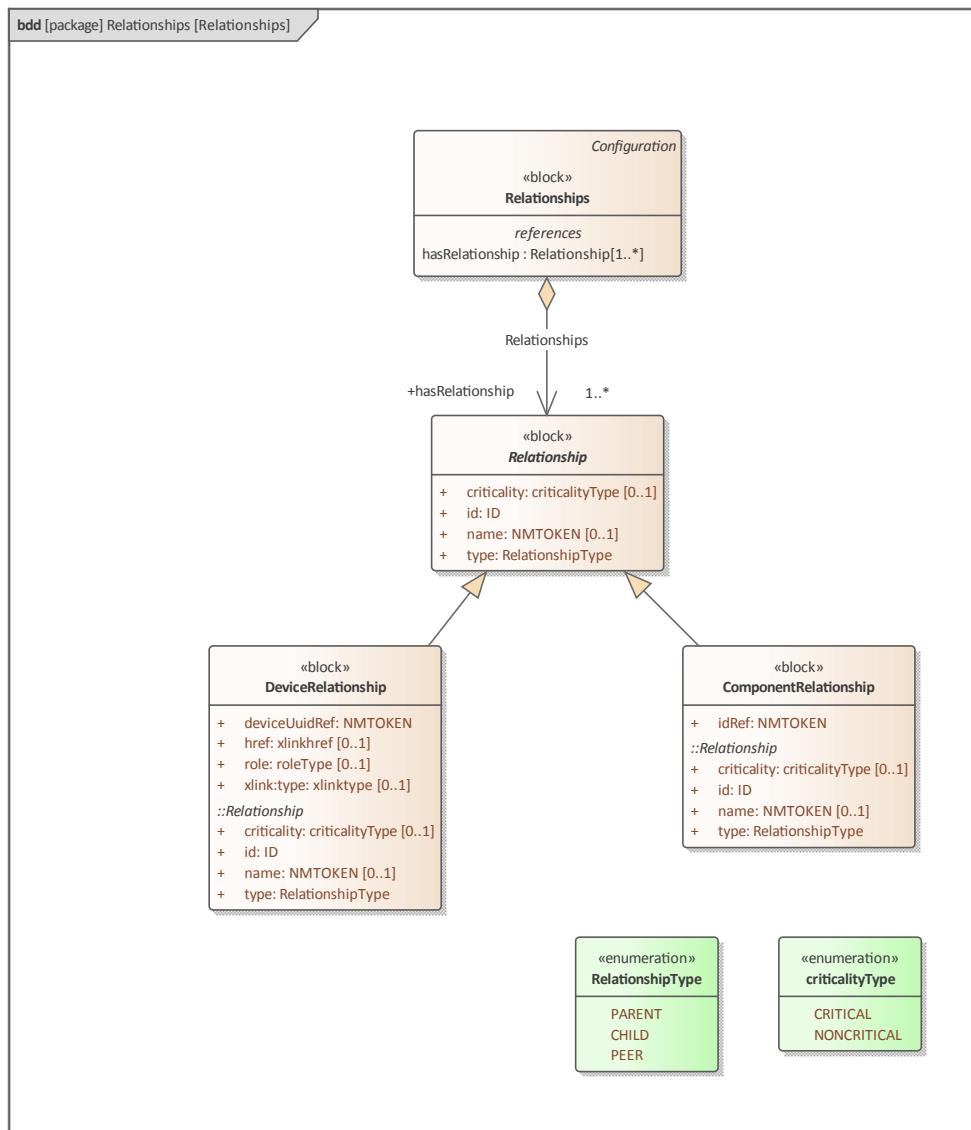


Figure 16: Relationships

Relationships

Package in package 'Configuration'

Relationships
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ComponentRelationship

Block «block» in package 'Relationships'

ComponentRelationship
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ComponentRelationship to «block» Relationship

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ idRef : NMOKEN Public

[Is static True. Containment is Not Specified.]

DeviceRelationship

Block «block» in package 'Relationships'

DeviceRelationship
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» DeviceRelationship to «block» Relationship

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ deviceUuidRef : NMOKEN Public

[Is static True. Containment is Not Specified.]

◆ href : xlink:href Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ role : roleType Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ xlink:type : xlink:type Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

Relationship

Block «block» in package 'Relationships'

Relationship
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS
<p>↳ Aggregation from «block» Relationship to «block» Relationships [Name is Relationships. Direction is 'Destination -> Source'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS
<p>⇒ Generalization from «block» DeviceRelationship to «block» Relationship [Direction is 'Source -> Destination'.]</p> <p>⇒ Generalization from «block» ComponentRelationship to «block» Relationship [Direction is 'Source -> Destination'.]</p>

ATTRIBUTES
<p>◆ criticality : criticalityType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]</p>
<p>◆ id : ID Public [Is static True. Containment is Not Specified.]</p>
<p>◆ name : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]</p>
<p>◆ type : RelationshipType Public [Is static True. Containment is Not Specified.]</p>

Relationships

Block «block» in package 'Relationships'

Relationships
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/4/2019. Last modified 10/29/2019

STRUCTURAL PART OF Relationships
<p>⌚ hasRelationship : Property</p>

OUTGOING STRUCTURAL RELATIONSHIPS
<p>↳ Generalization from «block» Relationships to «block» Configuration [Direction is 'Source -> Destination'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Aggregation from «block» Relationship to «block» Relationships

[Name is Relationships. Direction is 'Destination -> Source'.]

hasRelationship

Property owned by 'Relationships', in package 'Relationships'

hasRelationship
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

criticalityType

Enumeration in package 'Relationships'

criticalityType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES

◆ CRITICAL : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ NONCRITICAL : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

RelationshipType

Enumeration in package 'Relationships'

RelationshipType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES

◆ PARENT : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ CHILD : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ PEER : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

SensorConfiguration

Package in package 'Configuration'

SensorConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

SensorConfiguration diagram

SysML Block Definition diagram in package 'SensorConfiguration'

SensorConfiguration
Version 1.0
ssingh created on 10/29/2019. Last modified 10/29/2019

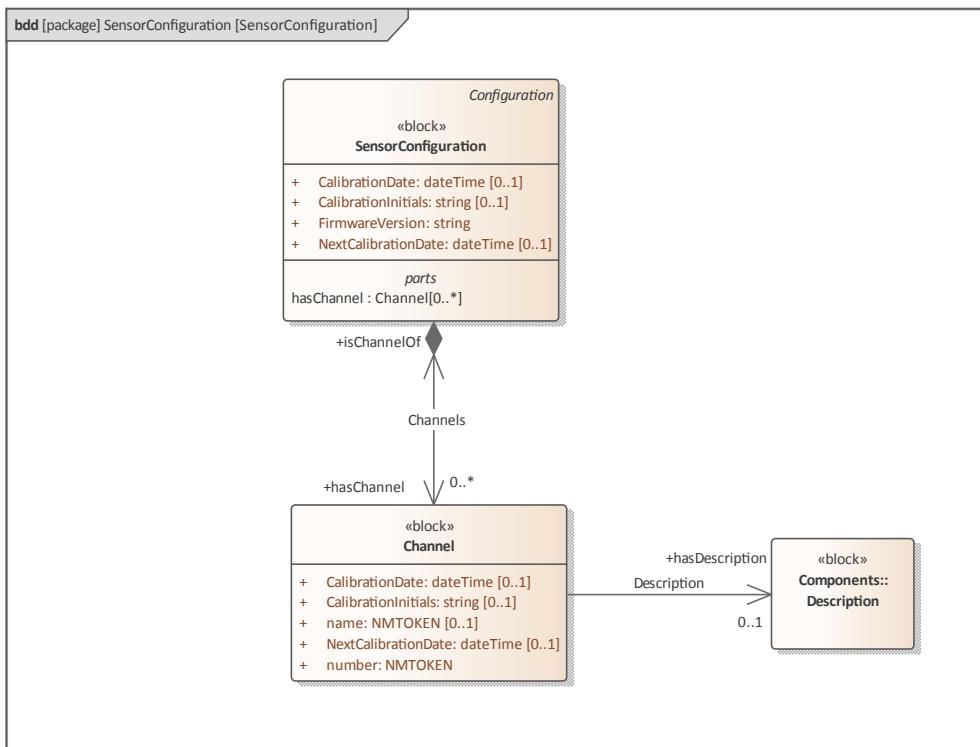


Figure 17: SensorConfiguration

Description

Block «block» in package 'Components'

Description
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/10/2019

ATTRIBUTES
<ul style="list-style-type: none"> ◆ manufacturer : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
<ul style="list-style-type: none"> ◆ model : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ serialNumber : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ station : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ value : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
↙ Association (direction: Destination -> Source) Description Source: Public hasDescription (Block) Description «block» Cardinality: [0..1]	Target: Public (Block) Component «block»
↙ Association (direction: Source -> Destination) Description Source: Public (Block) Channel «block»	Target: Public hasDescription (Block) Description «block» Cardinality: [0..1]

SensorConfiguration

Package in package 'Configuration'

SensorConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Channel

Block «block» in package 'SensorConfiguration'

Channel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
← Aggregation from «block» Channel to «block» SensorConfiguration	[Name is Channels. Direction is 'Bi-Directional'.]

ATTRIBUTES	
◆ CalibrationDate : dateTime Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ CalibrationInitials : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ name : NMOKEN Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ NextCalibrationDate : dateTime Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ number : NMOKEN Public	
	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Source -> Destination) Description	Source: Public (Block) Channel «block»
	Target: Public hasDescription (Block) Description «block» Cardinality: [0..1]

SensorConfiguration

Block «block» in package 'SensorConfiguration'

SensorConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/29/2019

STRUCTURAL PART OF SensorConfiguration	
⚙ hasChannel : Property	

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Generalization from «block» SensorConfiguration to «block» Configuration	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
--	--

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» Channel to «block» SensorConfiguration	[Name is Channels. Direction is 'Bi-Directional'.]
ATTRIBUTES	
◆ CalibrationDate : dateTime Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	
[Is static True. Containment is Not Specified.]	
◆ CalibrationInitials : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	
[Is static True. Containment is Not Specified.]	
◆ FirmwareVersion : string Public	
[Is static True. Containment is Not Specified.]	
◆ NextCalibrationDate : dateTime Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	
[Is static True. Containment is Not Specified.]	

hasChannel

Property owned by 'SensorConfiguration', in package 'SensorConfiguration'

hasChannel
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Configuration

Block «block» in package 'Configuration'

Configuration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/21/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
← Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» CoordinateSystems to «block» Configuration	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Relationships to «block» Configuration	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Specifications to «block» Configuration	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Motion to «block» Configuration	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» SensorConfiguration to «block» Configuration	[Direction is 'Source -> Destination'.]

CoordinateSystem

Block «block» in package 'Configuration'

CoordinateSystem
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

ASSOCIATIONS	
✓ Association (direction: Unspecified)	
Source: Public (Block) CoordinateSystem «block»	Target: Public (Block) Origin «block»
✓ Association (direction: Unspecified)	
Source: Public (Block) CoordinateSystem «block»	Target: Public (Block) Transform «block» Cardinality: [0..1]
✓ Association (direction: Source -> Destination)	
Source: Public (Block) CoordinateSystems «block»	Target: Public (Block) CoordinateSystem «block» Cardinality: [1..*]

CoordinateSystems

Block «block» in package 'Configuration'

CoordinateSystems
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
-----------------------------------	--

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» CoordinateSystems to «block» Configuration

[Direction is 'Source -> Destination'.]

ASSOCIATIONS

✍ Association (direction: Source -> Destination)

Source: Public (Block) CoordinateSystems «block»

Target: Public (Block) CoordinateSystem «block»

Cardinality: [1..*]

Motion

Block «block» in package 'Configuration'

Motion

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» Motion to «block» Configuration

[Direction is 'Source -> Destination'.]

Origin

Block «block» in package 'Configuration'

Origin

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

ASSOCIATIONS

✍ Association (direction: Unspecified)

Source: Public (Block) CoordinateSystem «block»

Target: Public (Block) Origin «block»

Specifications

Block «block» in package 'Configuration'

Specifications

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» Specifications to «block» Configuration

[Direction is 'Source -> Destination'.]

Transform

Block «block» in package 'Configuration'

Transform
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/4/2019. Last modified 10/4/2019

ASSOCIATIONS

✍ Association (direction: Unspecified)

Source: Public (Block) CoordinateSystem «block»

Target: Public (Block) Transform «block»

Cardinality: [0..1]

DataItems

Package in package 'Components'

DataItems
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/9/2019

DataItems diagram

SysML Block Definition diagram in package 'DataItems'

DataItems
Version 1.0
ssingh created on 9/30/2019. Last modified 10/29/2019

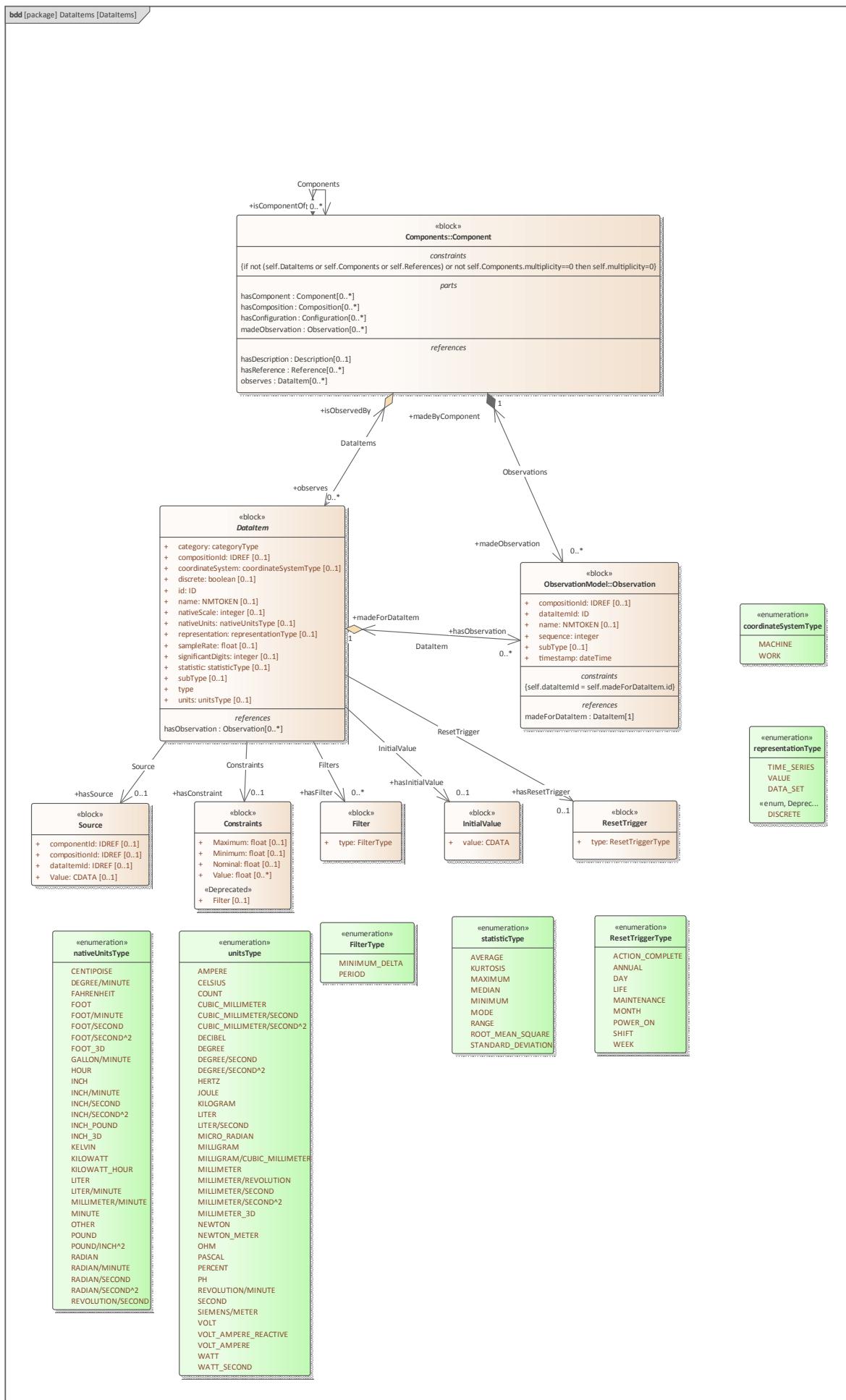


Figure 18: DataItems

Component

Block «block» in package 'Components'

Component
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/16/2019

STRUCTURAL PART OF Component	
⌚ hasComponent : Property	
⌚ hasComposition : Property	
⌚ hasConfiguration : Property	
⌚ hasDescription : Property	
⌚ hasReference : Property	
⌚ madeObservation : Property	
⌚ observes : Property	
CONSTRAINTS	
⌚ Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0	[Mandatory, Weight is 0.]
OUTGOING STRUCTURAL RELATIONSHIPS	
⬅ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS	
➡ Generalization from «block» Composition to «block» Component	[Direction is 'Source -> Destination'.]
➡ Generalization from «block» Actuator to «block» Component	[Direction is 'Source -> Destination'.]
➡ Generalization from «block» Controller to «block» Component	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» DataItem to «block» Component	[Name is DataItems. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Auxiliaries to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Observation to «block» Component	[Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component	[Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component	[Name is Compositions. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ name : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleInterval : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Destination -> Source) Description	

Source: Public hasDescription (Block) Description «block»
Cardinality: [0..1]

Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

DataItems

Package in package 'Components'

DataItems
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/9/2019

Observation

Block «block» in package 'ObservationModel'

Observation
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

STRUCTURAL PART OF Observation

STRUCTURAL PART OF Observation
⌚ madeForDataItem : Property
CONSTRAINTS
⌚ Invariant. self.dataItemId = self.madeForDataItem.id [Approved, Weight is 0.]
OUTGOING STRUCTURAL RELATIONSHIPS
↳ Aggregation from «block» Observation to «block» Component [Name is Observations. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS
⇒ Generalization from «block» Event to «block» Observation [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Sample to «block» Observation [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Condition to «block» Observation [Direction is 'Source -> Destination'.]
ATTRIBUTES
◆ compositionId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ dataItemId : ID Public [Is static True. Containment is Not Specified.]
◆ name : NMTOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ sequence : integer Public [Is static True. Containment is Not Specified.]
◆ subType : Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ timestamp : dateTime Public [Is static True. Containment is Not Specified.]

ATTRIBUTES
ASSOCIATIONS
<p> Association (direction: Bi-Directional) DataItem</p> <p>Source: Public madeForDataItem (Block) DataItem «block» Cardinality: [1]</p> <p>Target: Public hasObservation (Block) Observation «block» Cardinality: [0..*]</p>

madeForDataItem

Property owned by 'Observation', in package 'ObservationModel'

madeForDataItem
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/10/2019. Last modified 10/21/2019

DataitemType

Package in package 'DataItems'

DataItemType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

DataitemType diagram

SysML Block Definition diagram in package 'DataItemType'

DataItemType
Version 1.0
ssingh created on 10/14/2019. Last modified 10/29/2019

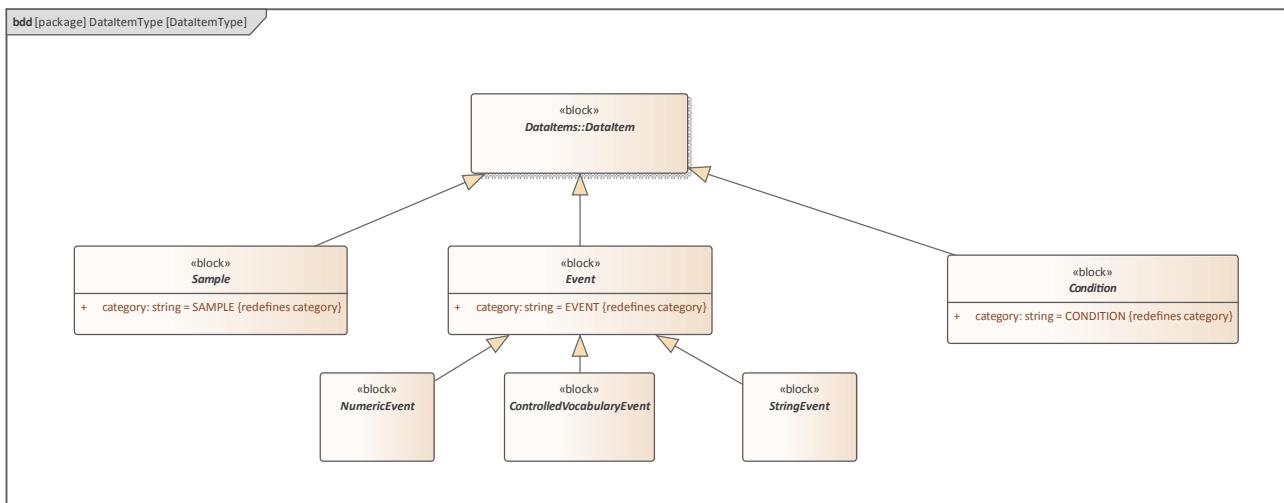


Figure 19: DataItemType

DataItem

Block «block» in package 'DataItems'

DataItem
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/14/2019

STRUCTURAL PART OF DataItem

- ⌚ hasObservation : Property

OUTGOING STRUCTURAL RELATIONSHIPS

- ↳ Aggregation from «block» DataItem to «block» Component

[Name is DataItems. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

- ⇒ Generalization from «block» Condition to «block» DataItem

[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» Sample to «block» DataItem

[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» Event to «block» DataItem

[Direction is 'Source -> Destination'.]

ATTRIBUTES

- ◆ category : categoryType Public

[Is static True. Containment is Not Specified.]
- ◆ compositionId : IDREF Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]
- ◆ coordinateSystem : coordinateSystemType Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]
- ◆ discrete : boolean Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]
- ◆ id : ID Public

[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ name : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeScale : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ representation : representationType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ statistic : statisticType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ subType : Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✓ Association (direction: Source -> Destination) Filters	
Source: Public (Block) DataItem «block»	Target: Public hasFilter (Block) Filter «block» Cardinality: [0..*]
✓ Association (direction: Bi-Directional) DataItem	

ASSOCIATIONS	
Source: Public madeForDataItem (Block) DataItem «block» Cardinality: [1]	Target: Public hasObservation (Block) Observation «block» Cardinality: [0..*]
Association (direction: Source -> Destination) ResetTrigger	
Source: Public (Block) DataItem «block»	Target: Public hasResetTrigger (Block) ResetTrigger «block» Cardinality: [0..1]
Association (direction: Source -> Destination) initialValue	
Source: Public (Block) DataItem «block»	Target: Public hasInitialValue (Block) initialValue «block» Cardinality: [0..1]
Association (direction: Source -> Destination) Constraints	
Source: Public (Block) DataItem «block»	Target: Public hasConstraint (Block) Constraints «block» Cardinality: [0..1]
Association (direction: Source -> Destination) Source	
Source: Public (Block) DataItem «block»	Target: Public hasSource (Block) Source «block» Cardinality: [0..1]

hasObservation

Property owned by 'DataItem', in package 'DataItems'

hasObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/10/2019. Last modified 10/21/2019

DataItemType

Package in package 'DataItems'

DataItemType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ConditionType

Package in package 'DataItemType'

ConditionType

ConditionType diagram

SysML Block Definition diagram in package 'ConditionType'

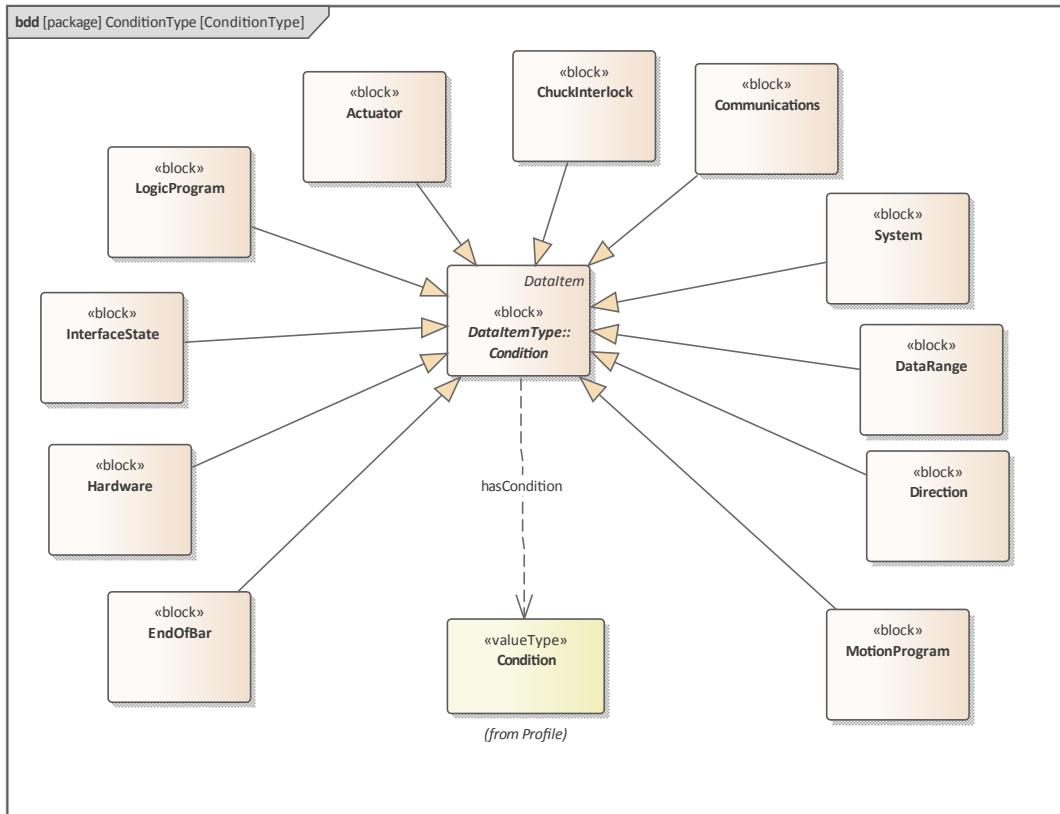
ConditionType
Version 1.0
ssingh created on 10/29/2019. Last modified 10/29/2019

Figure 20: ConditionType

Condition

ValueType «ValueType» in package 'Profile'

Condition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

CONNECTORS		
Dependency hasCondition Source -> Destination From: Condition : Block, Public To: Condition : ValueType, Public		

Condition

Block «block» in package 'DataItemType'

Condition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Condition to «block» DataItem

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Direction to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» LogicProgram to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Hardware to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Communications to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» System to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» ChuckInterlock to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» Actuator to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» InterfaceState to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» EndOfBar to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» DataRange to «block» Condition

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» MotionProgram to «block» Condition

[Direction is 'Source -> Destination'.]

CONNECTORS

CONNECTORS

 **Dependency** hasCondition Source -> Destination

From: Condition : Block, Public
To: Condition : ValueType, Public

ATTRIBUTES

 category : string Public = CONDITION

[Is static True. Containment is Not Specified.]

ConditionType

Package in package 'DataItemType'

ConditionType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Actuator

Block «block» in package 'ConditionType'

Actuator
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

 Generalization from «block» Actuator to «block» Condition

[Direction is 'Source -> Destination'.]

ChuckInterlock

Block «block» in package 'ConditionType'

ChuckInterlock
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

 Generalization from «block» ChuckInterlock to «block» Condition

[Direction is 'Source -> Destination'.]

Communications

Block «block» in package 'ConditionType'

Communications
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Communications to «block» Condition

[Direction is 'Source -> Destination'.]

DataRange*Block «block» in package 'ConditionType'*

DataRange
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» DataRange to «block» Condition

[Direction is 'Source -> Destination'.]

Direction*Block «block» in package 'ConditionType'*

Direction
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Direction to «block» Condition

[Direction is 'Source -> Destination'.]

EndOfBar*Block «block» in package 'ConditionType'*

EndOfBar
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» EndOfBar to «block» Condition

[Direction is 'Source -> Destination'.]

Hardware

Block «block» in package 'ConditionType'

Hardware

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Hardware to «block» Condition

[Direction is 'Source -> Destination'.]

InterfaceState

Block «block» in package 'ConditionType'

InterfaceState

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» InterfaceState to «block» Condition

[Direction is 'Source -> Destination'.]

LogicProgram

Block «block» in package 'ConditionType'

LogicProgram

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» LogicProgram to «block» Condition

[Direction is 'Source -> Destination'.]

MotionProgram

Block «block» in package 'ConditionType'

MotionProgram

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» MotionProgram to «block» Condition

[Direction is 'Source -> Destination'.]

System

Block «block» in package 'ConditionType'

System
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS
--

↳ Generalization from «block» System to «block» Condition

[Direction is 'Source -> Destination'.]

EventType

Package in package 'DataItemType'

EventType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

EventType diagram

SysML Block Definition diagram in package 'EventType'

EventType
Version 1.0
ssingh created on 10/14/2019. Last modified 12/20/2019

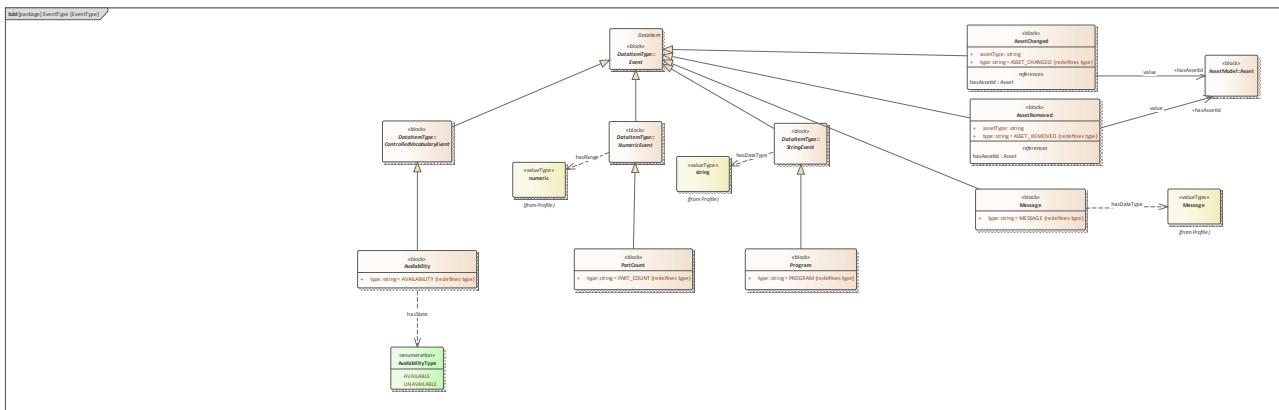


Figure 21: EventType

Message

ValueType «ValueType» in package 'Profile'

Message
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019



numeric

ValueType «ValueType» in package 'Profile'

numeric
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019



CONNECTORS
<p>↗ Dependency hasRange Source -> Destination From: NumericEvent : Block, Public To: numeric : ValueType, Public</p>
<p>↗ Dependency hasDataType Source -> Destination From: Sample : Block, Public To: numeric : ValueType, Public</p>

string*ValueType «ValueType» in package 'Profile'*

string
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

CONNECTORS
<p>↗ Dependency hasDataType Source -> Destination From: StringEvent : Block, Public To: string : ValueType, Public</p>
<p>↗ Dependency hasDataType Source -> Destination From: Error : Block, Public To: string : ValueType, Public</p>

ControlledVocabularyEvent*Block «block» in package 'DataItemType'*

ControlledVocabularyEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/17/2019

OUTGOING STRUCTURAL RELATIONSHIPS
<p>↳ Generalization from «block» ControlledVocabularyEvent to «block» Event [Direction is 'Source -> Destination'.]</p>

INCOMING STRUCTURAL RELATIONSHIPS
<p>⇒ Generalization from «block» Availability to «block» ControlledVocabularyEvent [Direction is 'Source -> Destination'.]</p>

Event*Block «block» in package 'DataItemType'*

Event
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Event to «block» DataItem

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Message to «block» Event

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» AssetRemoved to «block» Event

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» AssetChanged to «block» Event

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» ControlledVocabularyEvent to «block» Event

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» StringEvent to «block» Event

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» NumericEvent to «block» Event

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ category : string Public = EVENT

[Is static True. Containment is Not Specified.]

NumericEvent

Block «block» in package 'DataItemType'

NumericEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» NumericEvent to «block» Event

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» PartCount to «block» NumericEvent

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasRange Source -> Destination

From: NumericEvent : Block, Public
To: numeric : ValueType, Public

StringEvent

Block «block» in package 'DataItemType'

StringEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

← Generalization from «block» StringEvent to «block» Event

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Program to «block» StringEvent

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasDataType Source -> Destination

From: StringEvent : Block, Public
To: string : ValueType, Public

EventType

Package in package 'DataItemType'

EventType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

Asset

Block «block» in package 'AssetModel'

Asset
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Aggregation from «block» Asset to «block» MTConnectAssets

[Name is Assets. Direction is 'Destination -> Source'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» CuttingToolArchetype to «block» Asset

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» CuttingTool to «block» Asset

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ assetId : ID Public

[Is static True. Containment is Not Specified.]

◆ Description : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ deviceUuid : NMOKEN Public

[Is static True. Containment is Not Specified.]

◆ removed : boolean Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ timestamp : dateTime Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

↙ Association (direction: Source -> Destination) value

Source: Public (Block) AssetRemoved «block»

Target: Public hasAssetId (Block) Asset «block»

↙ Association (direction: Source -> Destination) value

Source: Public (Block) AssetChanged «block»

Target: Public hasAssetId (Block) Asset «block»

AssetChanged

Block «block» in package 'EventType'

AssetChanged
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF AssetChanged

- ✖ hasAssetId : Property

OUTGOING STRUCTURAL RELATIONSHIPS

- ◀ Generalization from «block» AssetChanged to «block» Event

[Direction is 'Source -> Destination'.]

ATTRIBUTES

- ◆ assetType : string Public
[Is static True. Containment is Not Specified.]
- ◆ type : string Public = ASSET_CHANGED
[Is static True. Containment is Not Specified.]

ASSOCIATIONS

- ✓ Association (direction: Source -> Destination) value

Source: Public (Block) AssetChanged «block»

Target: Public hasAssetId (Block) Asset «block»

hasAssetId

Property owned by 'AssetChanged', in package 'EventType'

hasAssetId
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019

AssetRemoved

Block «block» in package 'EventType'

AssetRemoved
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF AssetRemoved

- ✖ hasAssetId : Property

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» AssetRemoved to «block» Event

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ assetType : string Public

[Is static True. Containment is Not Specified.]

◆ type : string Public = ASSET_REMOVED

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

✍ Association (direction: Source -> Destination) value

Source: Public (Block) AssetRemoved «block»

Target: Public hasAssetId (Block) Asset «block»

hasAssetId

Property owned by 'AssetRemoved', in package 'EventType'

hasAssetId
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019

Availability

Block «block» in package 'EventType'

Availability
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Availability to «block» ControlledVocabularyEvent

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasState Source -> Destination

From: Availability : Block, Public

To: AvailabilityType : Enumeration, Public

ATTRIBUTES

◆ type : string Public = AVAILABILITY

[Is static True. Containment is Not Specified.]

ATTRIBUTES**Message***Block «block» in package 'EventType'*

Message
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Message to «block» Event

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasDataType Source -> Destination

From: Message : Block, Public

To: Message : ValueType, Public

ATTRIBUTES

◆ type : string Public = MESSAGE

[Is static True. Containment is Not Specified.]

PartCount*Block «block» in package 'EventType'*

PartCount
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» PartCount to «block» NumericEvent

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ type : string Public = PART_COUNT

[Is static True. Containment is Not Specified.]

Program*Block «block» in package 'EventType'*

Program
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Program to «block» StringEvent

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ type : string Public = PROGRAM

[Is static True. Containment is Not Specified.]

AvailabilityType

Enumeration in package 'EventType'

AvailabilityType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

CONNECTORS

↗ Dependency hasState Source -> Destination

From: Availability : Block, Public

To: AvailabilityType : Enumeration, Public

ATTRIBUTES

◆ AVAILABLE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ UNAVAILABLE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

SampleType

Package in package 'DataItemType'

SampleType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

SampleType diagram

SysML Block Definition diagram in package 'SampleType'

SampleType
Version 1.0
ssingh created on 10/14/2019. Last modified 12/20/2019

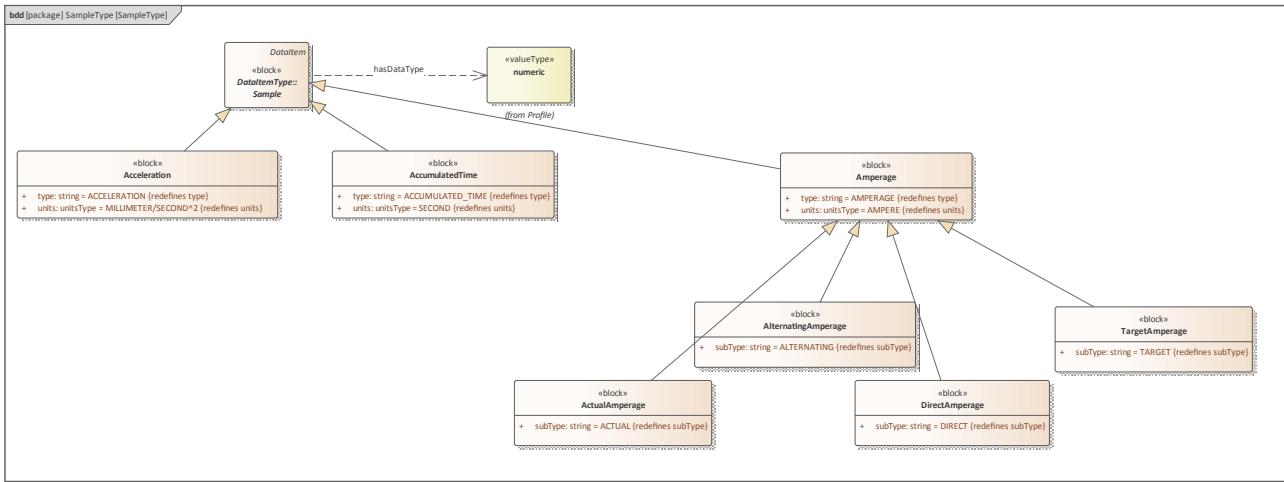


Figure 22: SampleType

numeric

ValueType «ValueType» in package 'Profile'

numeric
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

CONNECTORS	
<p>↗ Dependency hasRange Source -> Destination</p> <p>From: NumericEvent : Block, Public</p> <p>To: numeric : ValueType, Public</p>	
<p>↗ Dependency hasDataType Source -> Destination</p> <p>From: Sample : Block, Public</p> <p>To: numeric : ValueType, Public</p>	

Sample

Block «block» in package 'DataItemType'

Sample

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» Sample to «block» DataItem

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

➡ Generalization from «block» AccumulatedTime to «block» Sample

[Direction is 'Source -> Destination'.]

➡ Generalization from «block» Amperage to «block» Sample

[Direction is 'Source -> Destination'.]

➡ Generalization from «block» Acceleration to «block» Sample

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasDataType Source -> Destination

From: Sample : Block, Public

To: numeric : ValueType, Public

ATTRIBUTES

◆ category : string Public = SAMPLE

[Is static True. Containment is Not Specified.]

SampleType

Package in package 'DataItemType'

SampleType

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

Acceleration

Block «block» in package 'SampleType'

Acceleration

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Acceleration to «block» Sample

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ type : string Public = ACCELERATION

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = MILLIMETER/SECOND^2

[Is static True. Containment is Not Specified.]

AccumulatedTime

Block «block» in package 'SampleType'

its

AccumulatedTime
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» AccumulatedTime to «block» Sample

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ type : string Public = ACCUMULATED_TIME

[Is static True. Containment is Not Specified.]

◆ units : unitsType Public = SECOND

[Is static True. Containment is Not Specified.]

ActualAmperage

Block «block» in package 'SampleType'

ActualAmperage
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/31/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» ActualAmperage to «block» Amperage

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ subType : string Public = ACTUAL

[Is static True. Containment is Not Specified.]

AlternatingAmperage

Block «block» in package 'SampleType'

AlternatingAmperage
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 12/20/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» AlternatingAmperage to «block» Amperage

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ subType : string Public = ALTERNATING

[Is static True. Containment is Not Specified.]

Amperage

Block «block» in package 'SampleType'

Amperage
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» Amperage to «block» Sample

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

▶ Generalization from «block» AlternatingAmperage to «block» Amperage

[Direction is 'Source -> Destination'.]

▶ Generalization from «block» TargetAmperage to «block» Amperage

[Direction is 'Source -> Destination'.]

▶ Generalization from «block» ActualAmperage to «block» Amperage

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» DirectAmperage to «block» Amperage	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ type : string Public = AMPERAGE	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public = AMPERE	[Is static True. Containment is Not Specified.]

DirectAmperage

Block «block» in package 'SampleType'

DirectAmperage
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/31/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
← Generalization from «block» DirectAmperage to «block» Amperage	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ subType : string Public = DIRECT	[Is static True. Containment is Not Specified.]

TargetAmperage

Block «block» in package 'SampleType'

TargetAmperage
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 12/20/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
← Generalization from «block» TargetAmperage to «block» Amperage	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ subType : string Public = TARGET	[Is static True. Containment is Not Specified.]

Condition

Block «block» in package 'DataItemType'

Condition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 12/19/2019

OUTGOING STRUCTURAL RELATIONSHIPS

- ◀ Generalization from «block» Condition to «block» DataItem
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

- ⇒ Generalization from «block» Direction to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» LogicProgram to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» Hardware to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» Communications to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» System to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» ChuckInterlock to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» Actuator to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» InterfaceState to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» EndOfBar to «block» Condition
[Direction is 'Source -> Destination'.]
- ⇒ Generalization from «block» DataRange to «block» Condition
[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» MotionProgram to «block» Condition

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasCondition Source -> Destination

From: Condition : Block, Public

To: Condition : ValueType, Public

ATTRIBUTES

◆ category : string Public = CONDITION

[Is static True. Containment is Not Specified.]

ControlledVocabularyEvent

Block «block» in package 'DataItemType'

ControlledVocabularyEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/17/2019

OUTGOING STRUCTURAL RELATIONSHIPS

⇐ Generalization from «block» ControlledVocabularyEvent to «block» Event

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» Availability to «block» ControlledVocabularyEvent

[Direction is 'Source -> Destination'.]

Event

Block «block» in package 'DataItemType'

Event
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

⇐ Generalization from «block» Event to «block» DataItem

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Message to «block» Event	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» AssetRemoved to «block» Event	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» AssetChanged to «block» Event	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» ControlledVocabularyEvent to «block» Event	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» StringEvent to «block» Event	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» NumericEvent to «block» Event	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ category : string Public = EVENT	[Is static True. Containment is Not Specified.]

NumericEvent

Block «block» in package 'DataItemType'

NumericEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
◀ Generalization from «block» NumericEvent to «block» Event	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» PartCount to «block» NumericEvent	[Direction is 'Source -> Destination'.]

CONNECTORS	
------------	--

CONNECTORS

 **Dependency** hasRange Source -> Destination

From: NumericEvent : Block, Public
To: numeric : ValueType, Public

Sample

Block «block» in package 'DataItemType'

Sample
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

 Generalization from «block» Sample to «block» DataItem

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

 Generalization from «block» AccumulatedTime to «block» Sample

[Direction is 'Source -> Destination'.]

 Generalization from «block» Amperage to «block» Sample

[Direction is 'Source -> Destination'.]

 Generalization from «block» Acceleration to «block» Sample

[Direction is 'Source -> Destination'.]

CONNECTORS

 **Dependency** hasDataType Source -> Destination

From: Sample : Block, Public
To: numeric : ValueType, Public

ATTRIBUTES

 category : string Public = SAMPLE

[Is static True. Containment is Not Specified.]

StringEvent

Block «block» in package 'DataItemType'

StringEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/14/2019

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» StringEvent to «block» Event

[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS

➡ Generalization from «block» Program to «block» StringEvent

[Direction is 'Source -> Destination'.]

CONNECTORS

↗ Dependency hasDataType Source -> Destination

From: StringEvent : Block, Public

To: string : ValueType, Public

Constraints

Block «block» in package 'DataItems'

Constraints

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ATTRIBUTES

◆ Filter : Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]

◆ Maximum : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ Minimum : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ Nominal : float Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ Value : float Public

Multiplicity: ([0..*], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

↙ Association (direction: Source -> Destination) Constraints

ASSOCIATIONS	
Source: Public (Block) DataItem «block»	Target: Public hasConstraint (Block) Constraints «block» Cardinality: [0..1]

DataItem

Block «block» in package 'DataItems'

DataItem
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/14/2019

STRUCTURAL PART OF DataItem
⌚ hasObservation : Property

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Aggregation from «block» DataItem to «block» Component [Name is DataItems. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS
⇒ Generalization from «block» Condition to «block» DataItem [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Sample to «block» DataItem [Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Event to «block» DataItem [Direction is 'Source -> Destination'.]

ATTRIBUTES
◆ category : categoryType Public [Is static True. Containment is Not Specified.]
◆ compositionId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ coordinateSystem : coordinateSystemType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ discrete : boolean Public

ATTRIBUTES	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : NMOKEN Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeScale : integer Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeUnits : nativeUnitsType Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ representation : representationType Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ significantDigits : integer Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ statistic : statisticType Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ subType : Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ type : Public	
	[Is static True. Containment is Not Specified.]
◆ units : unitsType Public	
Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS

ASSOCIATIONS	
Association (direction: Source -> Destination) Filters	
Source: Public (Block) DataItem «block» Cardinality: [1]	Target: Public hasFilter (Block) Filter «block» Cardinality: [0..*]
Association (direction: Bi-Directional) DataItem	
Source: Public madeForDataItem (Block) DataItem «block» Cardinality: [1]	Target: Public hasObservation (Block) Observation «block» Cardinality: [0..*]
Association (direction: Source -> Destination) ResetTrigger	
Source: Public (Block) DataItem «block»	Target: Public hasResetTrigger (Block) ResetTrigger «block» Cardinality: [0..1]
Association (direction: Source -> Destination) initialValue	
Source: Public (Block) DataItem «block»	Target: Public hasInitialValue (Block) initialValue «block» Cardinality: [0..1]
Association (direction: Source -> Destination) Constraints	
Source: Public (Block) DataItem «block»	Target: Public hasConstraint (Block) Constraints «block» Cardinality: [0..1]
Association (direction: Source -> Destination) Source	
Source: Public (Block) DataItem «block»	Target: Public hasSource (Block) Source «block» Cardinality: [0..1]

hasObservation

Property owned by 'DataItem', in package 'DataItems'

hasObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/10/2019. Last modified 10/21/2019

Filter

Block «block» in package 'DataItems'

Filter
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ATTRIBUTES

ATTRIBUTES

 type : FilterType Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

 Association (direction: Source -> Destination) Filters

Source: Public (Block) DataItem «block»

Target: Public hasFilter (Block) Filter «block»

Cardinality: [0..*]

InitialValue

Block «block» in package 'DataItems'

InitialValue

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ATTRIBUTES

 value : CDATA Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

 Association (direction: Source -> Destination) InitialValue

Source: Public (Block) DataItem «block»

Target: Public hasInitialValue (Block) InitialValue
«block»

Cardinality: [0..1]

ResetTrigger

Block «block» in package 'DataItems'

ResetTrigger

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ATTRIBUTES

 type : ResetTriggerType Public

[Is static True. Containment is Not Specified.]

ASSOCIATIONS

 Association (direction: Source -> Destination) ResetTrigger

Source: Public (Block) DataItem «block»

Target: Public hasResetTrigger (Block)

ASSOCIATIONS
ResetTrigger «block» Cardinality: [0..1]

Source

Block «block» in package 'DataItems'

Source
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

ATTRIBUTES
◆ componentId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ compositionId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ dataItemId : IDREF Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ Value : CDATA Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]

ASSOCIATIONS
✍ Association (direction: Source -> Destination) Source Source: Public (Block) DataItem «block» Target: Public hasSource (Block) Source «block» Cardinality: [0..1]

coordinateSystemType

Enumeration in package 'DataItems'

coordinateSystemType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES
◆ MACHINE : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES

◆ WORK : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

FilterType

Enumeration in package 'DataItems'

FilterType

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/29/2019

ATTRIBUTES

◆ MINIMUM_DELTA : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ PERIOD : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

nativeUnitsType

Enumeration in package 'DataItems'

nativeUnitsType

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES

◆ CENTIPOISE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ DEGREE/MINUTE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ FAHRENHEIT : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ FOOT : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ FOOT/MINUTE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ FOOT/SECOND : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ FOOT/SECOND ²	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ FOOT_3D	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ GALLON/MINUTE	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ HOUR	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH/MINUTE	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH/SECOND	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH/SECOND ²	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH_POUND	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ INCH_3D	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ KELVIN	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ KILOWATT	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ KILOWATT_HOUR	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LITER	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LITER/MINUTE	: Public [Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ MILLIMETER/MINUTE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MINUTE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ OTHER : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ POUND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ POUND/INCH ² : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ RADIANT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ RADIANT/MINUTE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ RADIANT/SECOND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ RADIANT/SECOND ² : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ REVOLUTION/SECOND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

representationType

Enumeration in package 'DataItems'

representationType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES	
◆ TIME_SERIES : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ VALUE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ DATA_SET : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DISCRETE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

ResetTriggerType

Enumeration in package 'DataItems'

ResetTriggerType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/29/2019

ATTRIBUTES	
◆ ACTION_COMPLETE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ ANNUAL : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DAY : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LIFE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MAINTENANCE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MONTH : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ POWER_ON : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ SHIFT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ WEEK : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

statisticType

Enumeration in package 'DataItems'

statisticType
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

ATTRIBUTES

◆ AVERAGE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ KURTOSIS : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ MAXIMUM : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ MEDIAN : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ MINIMUM : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ MODE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ RANGE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ ROOT_MEAN_SQUARE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

◆ STANDARD_DEVIATION : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

unitsType

Enumeration in package 'DataItems'

unitsType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

ATTRIBUTES

◆ AMPERE : Public

[Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES
◆ CELSIUS : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ COUNT : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ CUBIC_MILLIMETER : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ CUBIC_MILLIMETER/SECOND : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ CUBIC_MILLIMETER/SECOND^2 : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DECIBEL : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DEGREE : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DEGREE/SECOND : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DEGREE/SECOND^2 : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ HERTZ : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ JOULE : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ KILOGRAM : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LITER : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LITER/SECOND : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MICRO_RADIAN : Public

ATTRIBUTES	
	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIGRAM : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIGRAM/CUBIC_MILLIMETER : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIMETER : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIMETER/REVOLUTION : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIMETER/SECOND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIMETER/SECOND^2 : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MILLIMETER_3D : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ NEWTON : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ NEWTON_METER : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ OHM : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ PASCAL : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ PERCENT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ PH : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ REVOLUTION/MINUTE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ SECOND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ SIEMENS/METER : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ VOLT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ VOLT_AMPERE_REACTIVE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ VOLT_AMPERE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ WATT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ WATT_SECOND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

References

Package in package 'Components'

References
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

References diagram

SysML Block Definition diagram in package 'References'

References
Version 1.0
ssingh created on 10/9/2019. Last modified 10/9/2019

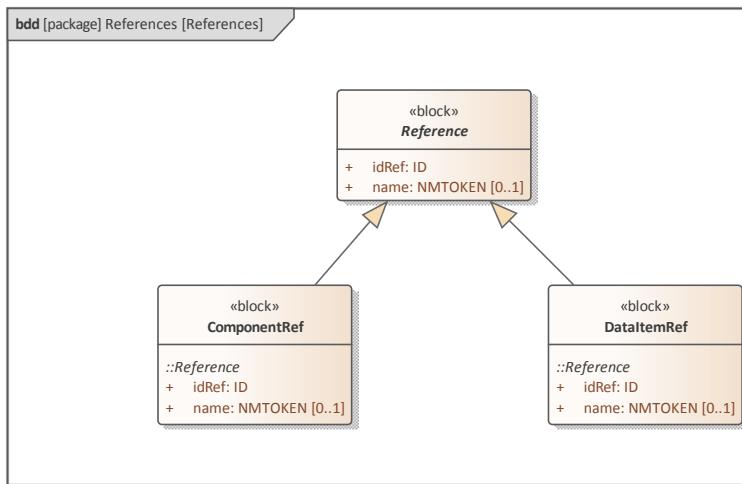


Figure 23: References

References

Package in package 'Components'

References
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

ComponentRef

Block «block» in package 'References'

ComponentRef
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Generalization from «block» ComponentRef to «block» Reference

[Direction is 'Source -> Destination'.]

DataItemRef

Block «block» in package 'References'

DataItemRef

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Generalization from «block» DataItemRef to «block» Reference

[Direction is 'Source -> Destination'.]

Reference

Block «block» in package 'References'

Reference

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/9/2019

OUTGOING STRUCTURAL RELATIONSHIPS

◀ Aggregation from «block» Reference to «block» Component

[Name is References. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

⇒ Generalization from «block» ComponentRef to «block» Reference

[Direction is 'Source -> Destination'.]

⇒ Generalization from «block» DataItemRef to «block» Reference

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ idRef : ID Public

[Is static True. Containment is Not Specified.]

◆ name : NMOKEN Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

Component

Block «block» in package 'Components'

Component

Version 1.0 Phase 1.0 Proposed

STRUCTURAL PART OF Component
⌚ hasComponent : Property
⌚ hasComposition : Property
⌚ hasConfiguration : Property
⌚ hasDescription : Property
⌚ hasReference : Property
⌚ madeObservation : Property
⌚ observes : Property

CONSTRAINTS
⌚ Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0 [Mandatory, Weight is 0.]

OUTGOING STRUCTURAL RELATIONSHIPS
⬅ Aggregation from «block» Component to «block» Component [Name is Components. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS
➡ Generalization from «block» Composition to «block» Component [Direction is 'Source -> Destination'.]
➡ Generalization from «block» Actuator to «block» Component [Direction is 'Source -> Destination'.]
➡ Generalization from «block» Controller to «block» Component [Direction is 'Source -> Destination'.]
➡ Aggregation from «block» DataItem to «block» Component [Name is DataItems. Direction is 'Bi-Directional'.]
➡ Generalization from «block» Auxiliaries to «block» Component [Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» Observation to «block» Component	[Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component	[Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component	[Name is Compositions. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ sampleInterval : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Destination -> Source) Description	
Source: Public hasDescription (Block) Description «block» Cardinality: [0..1]	Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

Description

Block «block» in package 'Components'

Description
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/10/2019

ATTRIBUTES	
◆ manufacturer : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ model : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ serialNumber : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]
◆ station : string Public	Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
	[Is static True. Containment is Not Specified.]

ATTRIBUTES
<p>◆ value : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]</p>
ASSOCIATIONS
<p>✍ Association (direction: Destination -> Source) Description Source: Public hasDescription (Block) Description «block» Cardinality: [0..1] Target: Public (Block) Component «block»</p>
<p>✍ Association (direction: Source -> Destination) Description Source: Public (Block) Channel «block» Target: Public hasDescription (Block) Description «block» Cardinality: [0..1]</p>

Devices

Package in package 'MetaModel'

Devices
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Device

Block «block» in package 'Devices'

Device
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

STRUCTURAL PART OF Device
⌚ DataItems : Property
⌚ hasComponent : Property
⌚ hasComposition : Property
⌚ hasConfiguration : Property
⌚ hasDescription : Property
⌚ hasReference : Property
⌚ observes : Property

OUTGOING STRUCTURAL RELATIONSHIPS
↳ Generalization from «block» Device to «block» Component [Direction is 'Source -> Destination'.]
↳ Aggregation from «block» Device to «block» MTConnectDevices [Name is Devices. Direction is 'Destination -> Source'.]

ATTRIBUTES
◆ iso841Class : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ name : string Public [Is static True. Containment is Not Specified.]

ATTRIBUTES
 uuid : NMOKEN Public [Is static True. Containment is Not Specified.]

DataItems

Property owned by 'Device', in package 'Devices'

DataItems
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/14/2019

hasComponent

Property owned by 'Device', in package 'Devices'

hasComponent
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Device', in package 'Devices'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Device', in package 'Devices'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Device', in package 'Devices'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Device', in package 'Devices'

hasReference

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

observes

Property owned by 'Device', in package 'Devices'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

ObservationModel

Package in package 'Model'

ObservationModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 9/30/2019

LINKS TO OTHER PACKAGES	
 Nesting from 'MTConnectStreams' Package to 'ObservationModel' Package	Direction: Source -> Destination
 Nesting from 'MQTT' Package to 'ObservationModel' Package	Direction: Source -> Destination
 Nesting from 'OPCUA' Package to 'ObservationModel' Package	Direction: Source -> Destination

ObservationModel diagram

SysML Block Definition diagram in package 'ObservationModel'

ObservationModel
Version 1.0
ssingh created on 9/30/2019. Last modified 12/19/2019

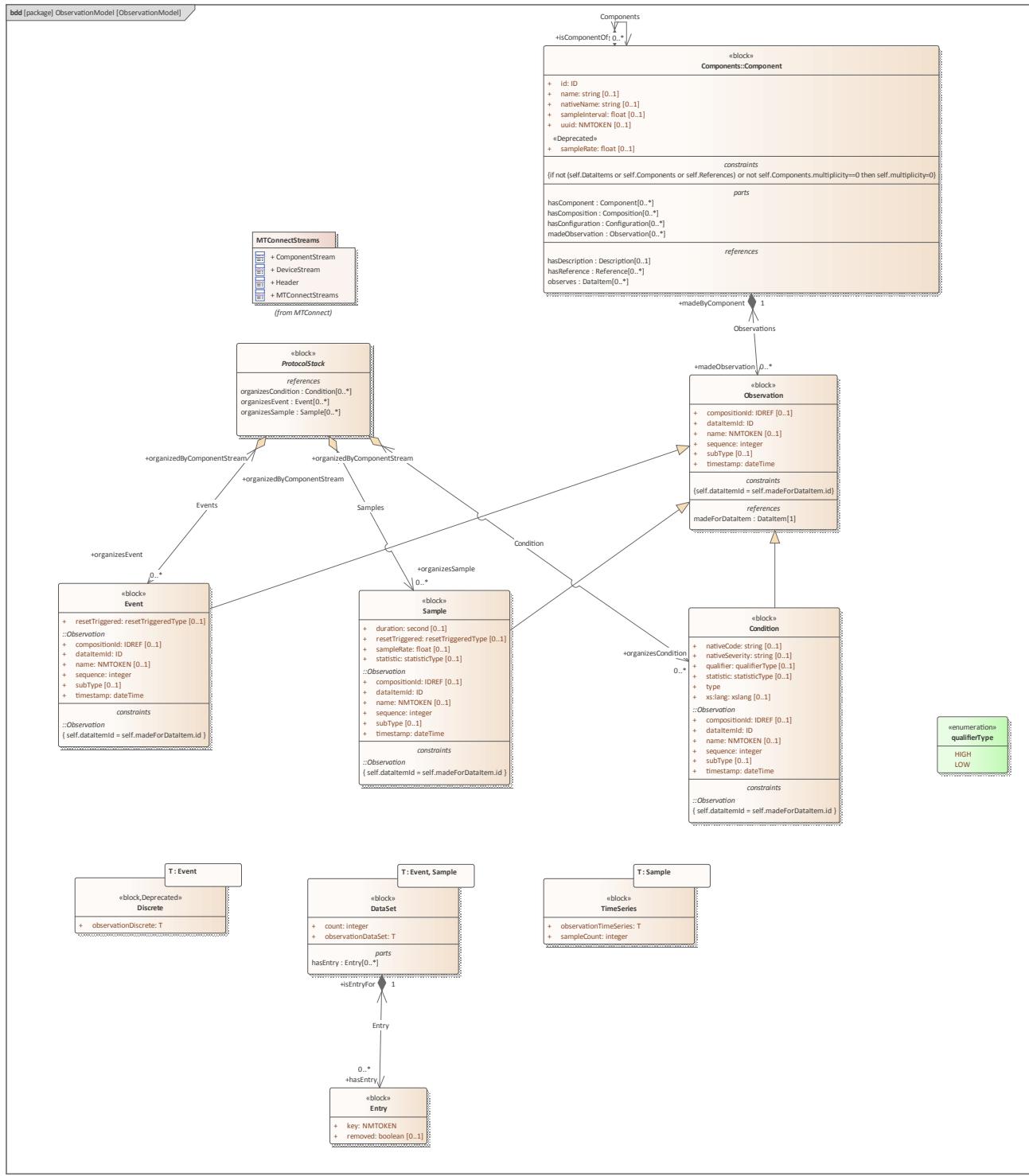


Figure 24: ObservationModel

ObservationModel

Package in package 'Model'

ObservationModel
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 9/30/2019

CONNECTORS

CONNECTORS	
 Nesting	Source -> Destination From: MTCConnectStreams : Package, Public To: ObservationModel : Package, Public
 Nesting	Source -> Destination From: MQTT : Package, Public To: ObservationModel : Package, Public
 Nesting	Source -> Destination From: OPCUA : Package, Public To: ObservationModel : Package, Public

Component

Block «block» in package 'Components'

Component
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/16/2019

STRUCTURAL PART OF Component
 hasComponent : Property
 hasComposition : Property
 hasConfiguration : Property
 hasDescription : Property
 hasReference : Property
 madeObservation : Property
 observes : Property

CONSTRAINTS
 Invariant. if not (self.DataItems or self.Components or self.References) or not self.Components.multiplicity==0 then self.multiplicity=0 [Mandatory, Weight is 0.]

OUTGOING STRUCTURAL RELATIONSHIPS

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Composition to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Actuator to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Controller to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» DataItem to «block» Component	[Name is DataItems. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Auxiliaries to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Observation to «block» Component	[Name is Observations. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Device to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Interfaces to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Reference to «block» Component	[Name is References. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Composition to «block» Component	[Name is Compositions. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Configuration to «block» Component	[Name is Configuration. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Axes to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Generalization from «block» Systems to «block» Component	[Direction is 'Source -> Destination'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Generalization from «block» Resources to «block» Component	[Direction is 'Source -> Destination'.]
⇒ Aggregation from «block» Component to «block» Component	[Name is Components. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» Door to «block» Component	[Direction is 'Source -> Destination'.]

ATTRIBUTES	
◆ id : ID Public	[Is static True. Containment is Not Specified.]
◆ name : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ nativeName : string Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleInterval : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Stereotype is «Deprecated». Is static True. Containment is Not Specified.]
◆ uuid : NMOKEN Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Destination -> Source) Description Source: Public hasDescription (Block) Description «block» Cardinality: [0..1]	Target: Public (Block) Component «block»

hasComponent

Property owned by 'Component', in package 'Components'

hasComponent

Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasComposition

Property owned by 'Component', in package 'Components'

hasComposition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasConfiguration

Property owned by 'Component', in package 'Components'

hasConfiguration
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasDescription

Property owned by 'Component', in package 'Components'

hasDescription
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

hasReference

Property owned by 'Component', in package 'Components'

hasReference
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/9/2019. Last modified 10/21/2019

madeObservation

Property owned by 'Component', in package 'Components'

madeObservation
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/21/2019. Last modified 10/21/2019

observes

Property owned by 'Component', in package 'Components'

observes
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

MTConnectStreams

Package in package 'MTConnect'

MTConnectStreams
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 11/4/2019

CONNECTORS

↗ **Nesting** Source -> Destination

From: MTConnectStreams : Package, Public
To: ObservationModel : Package, Public

Condition

Block «block» in package 'ObservationModel'

Condition
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 9/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Condition to «block» Observation

[Direction is 'Source -> Destination'.]

↳ Aggregation from «block» Condition to «block» ProtocolStack

[Name is Condition. Direction is 'Bi-Directional'.]

ATTRIBUTES

◆ nativeCode : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ nativeSeverity : string Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ qualifier : qualifierType Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ statistic : statisticType Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

ATTRIBUTES	
◆ type : Public	[Is static True. Containment is Not Specified.]
◆ xs:lang : xslang Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

DataSet

Block «block» in package 'ObservationModel'

DataSet
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

STRUCTURAL PART OF DataSet	
⚙ hasEntry : Property	
INCOMING STRUCTURAL RELATIONSHIPS	
➡ Aggregation from «block» Entry to «block» DataSet	[Name is Entry. Direction is 'Bi-Directional'.]

ATTRIBUTES	
◆ count : integer Public	[Is static True. Containment is Not Specified.]
◆ observationDataSet : T Public	[Is static True. Containment is Not Specified.]

hasEntry

Property owned by 'DataSet', in package 'ObservationModel'

hasEntry
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

Discrete

Block «block» in package 'ObservationModel'

Discrete
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

ATTRIBUTES

◆ observationDiscrete : T Public

[Is static True. Containment is Not Specified.]

Entry

Block «block» in package 'ObservationModel'

Entry
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Aggregation from «block» Entry to «block» DataSet

[Name is Entry. Direction is 'Bi-Directional'.]

ATTRIBUTES

◆ key : NMOKEN Public

[Is static True. Containment is Not Specified.]

◆ removed : boolean Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

Event

Block «block» in package 'ObservationModel'

Event
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 9/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS

↳ Generalization from «block» Event to «block» Observation

[Direction is 'Source -> Destination'.]

↳ Aggregation from «block» Event to «block» ProtocolStack

[Name is Events. Direction is 'Bi-Directional'.]

ATTRIBUTES

◆ resetTriggered : resetTriggeredType Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

Observation

Block «block» in package 'ObservationModel'

Observation
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

STRUCTURAL PART OF Observation

⚙ madeForDataItem : Property

CONSTRAINTS

⌚ Invariant. self.dataItemId = self.madeForDataItem.id

[Approved, Weight is 0.]

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Aggregation from «block» Observation to «block» Component

[Name is Observations. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS

➡ Generalization from «block» Event to «block» Observation

[Direction is 'Source -> Destination'.]

➡ Generalization from «block» Sample to «block» Observation

[Direction is 'Source -> Destination'.]

➡ Generalization from «block» Condition to «block» Observation

[Direction is 'Source -> Destination'.]

ATTRIBUTES

◆ compositionId : IDREF Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ dataItemId : ID Public

[Is static True. Containment is Not Specified.]

◆ name : NMTOKEN Public

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

◆ sequence : integer Public

ATTRIBUTES	
[Is static True. Containment is Not Specified.]	
◆ subType : Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ timestamp : dateTime Public	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
Association (direction: Bi-Directional) DataItem Source: Public madeForDataItem (Block) DataItem «block» Cardinality: [1]	Target: Public hasObservation (Block) Observation «block» Cardinality: [0..*]

madeForDataItem

Property owned by 'Observation', in package 'ObservationModel'

madeForDataItem
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/10/2019. Last modified 10/21/2019

ProtocolStack

Block «block» in package 'ObservationModel'

ProtocolStack
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 10/31/2019. Last modified 11/1/2019

STRUCTURAL PART OF ProtocolStack	
⚙️ organizesCondition : Property	
⚙️ organizesEvent : Property	
⚙️ organizesSample : Property	

INCOMING STRUCTURAL RELATIONSHIPS	
➡️ Aggregation from «block» Sample to «block» ProtocolStack	[Name is Samples. Direction is 'Bi-Directional'.]

INCOMING STRUCTURAL RELATIONSHIPS	
⇒ Aggregation from «block» Condition to «block» ProtocolStack	[Name is Condition. Direction is 'Bi-Directional'.]
⇒ Aggregation from «block» Event to «block» ProtocolStack	[Name is Events. Direction is 'Bi-Directional'.]
⇒ Generalization from «block» ComponentStream to «block» ProtocolStack	[Direction is 'Source -> Destination'.]

organizesCondition

Property owned by 'ProtocolStack', in package 'ObservationModel'

organizesCondition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 10/31/2019

organizesEvent

Property owned by 'ProtocolStack', in package 'ObservationModel'

organizesEvent
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 10/31/2019

organizesSample

Property owned by 'ProtocolStack', in package 'ObservationModel'

organizesSample
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 10/31/2019

Sample

Block «block» in package 'ObservationModel'

Sample
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 9/30/2019

OUTGOING STRUCTURAL RELATIONSHIPS	
⇐ Generalization from «block» Sample to «block» Observation	[Direction is 'Source -> Destination'.]

OUTGOING STRUCTURAL RELATIONSHIPS	
↳ Aggregation from «block» Sample to «block» ProtocolStack	[Name is Samples. Direction is 'Bi-Directional'.]

ATTRIBUTES	
◆ duration : second Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ resetTriggered : resetTriggeredType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ sampleRate : float Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ statistic : statisticType Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]

TimeSeries

Block «block» in package 'ObservationModel'

TimeSeries
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

ATTRIBUTES	
◆ observationTimeSeries : T Public	[Is static True. Containment is Not Specified.]
◆ sampleCount : integer Public	[Is static True. Containment is Not Specified.]

qualifierType

Enumeration in package 'ObservationModel'

qualifierType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

ATTRIBUTES	

ATTRIBUTES	
◆ HIGH : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ LOW : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

resetTriggeredType

Enumeration in package 'ObservationModel'

resetTriggeredType
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

ATTRIBUTES	
◆ ACTION_COMPLETE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ ANNUAL : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ DAY : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MAINTENANCE : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MANUAL : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ MONTH : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ POWER_ON : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ SHIFT : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ WEEK : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]

Profile

ValueType «ValueType» in package 'Model'

Profile
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 10/9/2019

CDATA

ValueType «ValueType» in package 'Profile'

CDATA
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Condition

ValueType «ValueType» in package 'Profile'

Condition
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

CONNECTORS

 **Dependency** hasCondition Source -> Destination
From: Condition : Block, Public
To: Condition : ValueType, Public

dateTime

ValueType «ValueType» in package 'Profile'

dateTime
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

ID

ValueType «ValueType» in package 'Profile'

ID
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

IDREF

ValueType «ValueType» in package 'Profile'

IDREF
Version 1.0 Phase 1.0 Proposed

ssingh created on 10/14/2019. Last modified 10/14/2019

integer

ValueType «ValueType» in package 'Profile'

integer
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

Message

ValueType «ValueType» in package 'Profile'

Message
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/20/2019. Last modified 12/20/2019

CONNECTORS

↗ **Dependency** hasDataType Source -> Destination
From: Message : Block, Public
To: Message : ValueType, Public

NMTOKEN

ValueType «ValueType» in package 'Profile'

NMTOKEN
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

numeric

ValueType «ValueType» in package 'Profile'

numeric
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

CONNECTORS

↗ **Dependency** hasRange Source -> Destination
From: NumericEvent : Block, Public
To: numeric : ValueType, Public

↗ **Dependency** hasDataType Source -> Destination
From: Sample : Block, Public
To: numeric : ValueType, Public

second

ValueType «ValueType» in package 'Profile'

second
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

string

ValueType «ValueType» in package 'Profile'

string
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

CONNECTORS
<p>↗ Dependency hasDataType Source -> Destination From: StringEvent : Block, Public To: string : ValueType, Public</p>
<p>↗ Dependency hasDataType Source -> Destination From: Error : Block, Public To: string : ValueType, Public</p>

ThreeSpaceValue

ValueType «ValueType» in package 'Profile'

ThreeSpaceValue
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/14/2019. Last modified 10/14/2019

xlink:href

ValueType «ValueType» in package 'Profile'

xlink:href
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

xlink:type

ValueType «ValueType» in package 'Profile'

xlink:type
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

xslang

ValueType «ValueType» in package 'Profile'

xslang
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

Protocols

Package in package 'Model'

Protocols
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/1/2019. Last modified 11/1/2019

MQTT

Package in package 'Protocols'

MQTT
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 11/1/2019

LINKS TO OTHER PACKAGES	
 Nesting from 'MQTT' Package to 'ObservationModel' Package	Direction: Source -> Destination

MTConnect

Package in package 'Protocols'

MTConnect
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

MTConnectAssets

Package in package 'MTConnect'

MTConnectAssets
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

Header

Block «block» in package 'MTConnectAssets'

Header
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 11/4/2019

ATTRIBUTES	
◆ assetBufferSize : integer	Public [Is static True. Containment is Not Specified.]
◆ assetCount : integer	Public [Is static True. Containment is Not Specified.]
◆ creationTime : dateTime	Public [Is static True. Containment is Not Specified.]
◆ instanceId : integer	Public [Is static True. Containment is Not Specified.]
◆ sender : string	Public [Is static True. Containment is Not Specified.]
◆ testIndicator : boolean	Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ version : integer	Public [Is static True. Containment is Not Specified.]

ASSOCIATIONS	

ASSOCIATIONS

Association (direction: Source -> Destination) Header

Source: Public (Block) MTConnectAssets «block»

Target: Public hasHeader (Block) Header «block»
Cardinality: [1]

MTConnectAssets

Block «block» in package 'MTConnectAssets'

MTConnectAssets
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 11/4/2019

STRUCTURAL PART OF MTConnectAssets

hasAsset : Property

hasHeader : Property

INCOMING STRUCTURAL RELATIONSHIPS

Aggregation from «block» Asset to «block» MTConnectAssets

[Name is Assets. Direction is 'Destination -> Source'.]

ASSOCIATIONS

Association (direction: Source -> Destination) Header

Source: Public (Block) MTConnectAssets «block»

Target: Public hasHeader (Block) Header «block»
Cardinality: [1]

hasAsset

Property owned by 'MTConnectAssets', in package 'MTConnectAssets'

hasAsset
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

hasHeader

Property owned by 'MTConnectAssets', in package 'MTConnectAssets'

hasHeader
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

MTConnectDevices

Package in package 'MTConnect'

MTConnectDevices
Version 1.0 Phase 1.0 Proposed
ssingh created on 11/4/2019. Last modified 11/4/2019

Header

Block «block» in package 'MTConnectDevices'

Header
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 11/4/2019

ATTRIBUTES	
◆ assetBufferSize : integer Public	[Is static True. Containment is Not Specified.]
◆ assetCount : integer Public	[Is static True. Containment is Not Specified.]
◆ bufferSize : integer Public	[Is static True. Containment is Not Specified.]
◆ creationTime : dateTime Public	[Is static True. Containment is Not Specified.]
◆ instanceId : integer Public	[Is static True. Containment is Not Specified.]
◆ sender : string Public	[Is static True. Containment is Not Specified.]
◆ testIndicator : boolean Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ version : string Public	[Is static True. Containment is Not Specified.]

ASSOCIATIONS

↙ Association (direction: Source -> Destination) Header

Source: Public (Block) MTConnectDevices «block»

Target: Public hasHeader (Block) Header «block»

Cardinality: [1]

MTConnectDevices

Block «block» in package 'MTConnectDevices'

MTConnectDevices
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 11/4/2019

STRUCTURAL PART OF MTConnectDevices

hasDevice : Property

hasHeader : Property

INCOMING STRUCTURAL RELATIONSHIPS

Aggregation from «block» Device to «block» MTConnectDevices

[Name is Devices. Direction is 'Destination -> Source'.]

ASSOCIATIONS

Association (direction: Source -> Destination) Header

Source: Public (Block) MTConnectDevices «block»

Target: Public hasHeader (Block) Header «block»
Cardinality: [1]

hasDevice

Property owned by 'MTConnectDevices', in package 'MTConnectDevices'

hasDevice
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/21/2019

hasHeader

Property owned by 'MTConnectDevices', in package 'MTConnectDevices'

hasHeader
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/30/2019. Last modified 10/30/2019

MTConnectErrors

Package in package 'MTConnect'

MTConnectErrors
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

MTConnectErrors diagram

SysML Block Definition diagram in package 'MTConnectErrors'

MTConnectErrors
Version 1.0
ssingh created on 12/19/2019. Last modified 12/19/2019

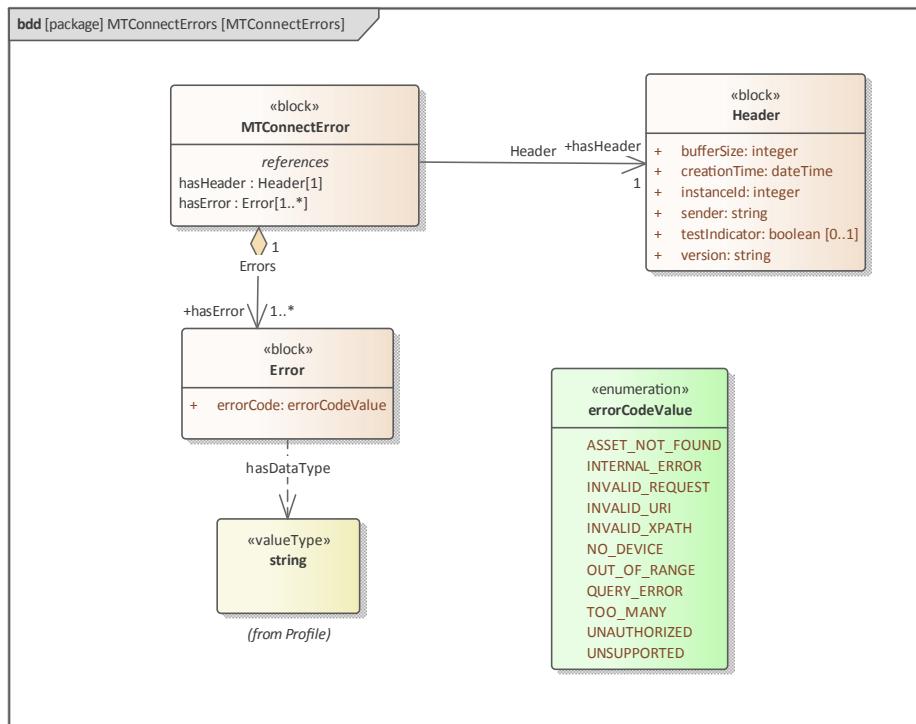


Figure 25: MTConnectErrors

string

ValueType «ValueType» in package 'Profile'

string
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/26/2019. Last modified 9/26/2019

CONNECTORS	
Dependency hasDataType Source -> Destination From: StringEvent : Block, Public To: string : ValueType, Public	

CONNECTORS

 **Dependency** hasDataType Source -> Destination
 From: Error : Block, Public
 To: string : ValueType, Public

MTConnectErrors

Package in package 'MTConnect'

MTConnectErrors
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

Error

Block «block» in package 'MTConnectErrors'

Error
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

CONNECTORS

 **Dependency** hasDataType Source -> Destination
 From: Error : Block, Public
 To: string : ValueType, Public

ATTRIBUTES

 errorCode : errorCodeValue Public
 [Is static True. Containment is Not Specified.]

ASSOCIATIONS

 Association (direction: Source -> Destination) Errors

Source: Public (Block) MTConnectError «block»
 Cardinality: [1]

Target: Public hasError (Block) Error «block»
 Cardinality: [1..*]

Header

Block «block» in package 'MTConnectErrors'

Header
 Version 1.0 Phase 1.0 Proposed
 ssingh created on 12/19/2019. Last modified 12/19/2019

ATTRIBUTES	
◆ bufferSize : integer Public	[Is static True. Containment is Not Specified.]
◆ creationTime : dateTime Public	[Is static True. Containment is Not Specified.]
◆ instanceId : integer Public	[Is static True. Containment is Not Specified.]
◆ sender : string Public	[Is static True. Containment is Not Specified.]
◆ testIndicator : boolean Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)	[Is static True. Containment is Not Specified.]
◆ version : string Public	[Is static True. Containment is Not Specified.]

ASSOCIATIONS	
✍ Association (direction: Source -> Destination) Header	
Source: Public (Block) MTConnectError «block»	Target: Public hasHeader (Block) Header «block» Cardinality: [1]

MTConnectError

Block «block» in package 'MTConnectErrors'

MTConnectError
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

STRUCTURAL PART OF MTConnectError	
◆ hasError : Property	
◆ hasHeader : Property	

ASSOCIATIONS	
✍ Association (direction: Source -> Destination) Errors	
Source: Public (Block) MTConnectError «block» Cardinality: [1]	Target: Public hasError (Block) Error «block» Cardinality: [1..*]

ASSOCIATIONS	
Association (direction: Source -> Destination) Header	
Source: Public (Block) MTConnectError «block»	Target: Public hasHeader (Block) Header «block» Cardinality: [1]

hasError

Property owned by 'MTConnectError', in package 'MTConnectErrors'

hasError
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

hasHeader

Property owned by 'MTConnectError', in package 'MTConnectErrors'

hasHeader
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

errorCodeValue

Enumeration in package 'MTConnectErrors'

errorCodeValue
Version 1.0 Phase 1.0 Proposed
ssingh created on 12/19/2019. Last modified 12/19/2019

ATTRIBUTES	
ASSET_NOT_FOUND : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
INTERNAL_ERROR : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
INVALID_REQUEST : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
INVALID_URI : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
INVALID_XPATH : Public	[Stereotype is «enum». Is static True. Containment is Not Specified.]
NO_DEVICE : Public	

ATTRIBUTES
[Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ OUT_OF_RANGE : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ QUERY_ERROR : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ TOO_MANY : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNAUTHORIZED : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]
◆ UNSUPPORTED : Public [Stereotype is «enum». Is static True. Containment is Not Specified.]

MTConnectStreams

Package in package 'MTConnect'

MTConnectStreams
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 11/4/2019

LINKS TO OTHER PACKAGES

Nesting from 'MTConnectStreams' Package to 'ObservationModel' Package

Direction: Source -> Destination

MTConnectStream diagram

SysML Block Definition diagram in package 'MTConnectStreams'

MTConnectStream
Version 1.0
ssingh created on 11/1/2019. Last modified 11/1/2019

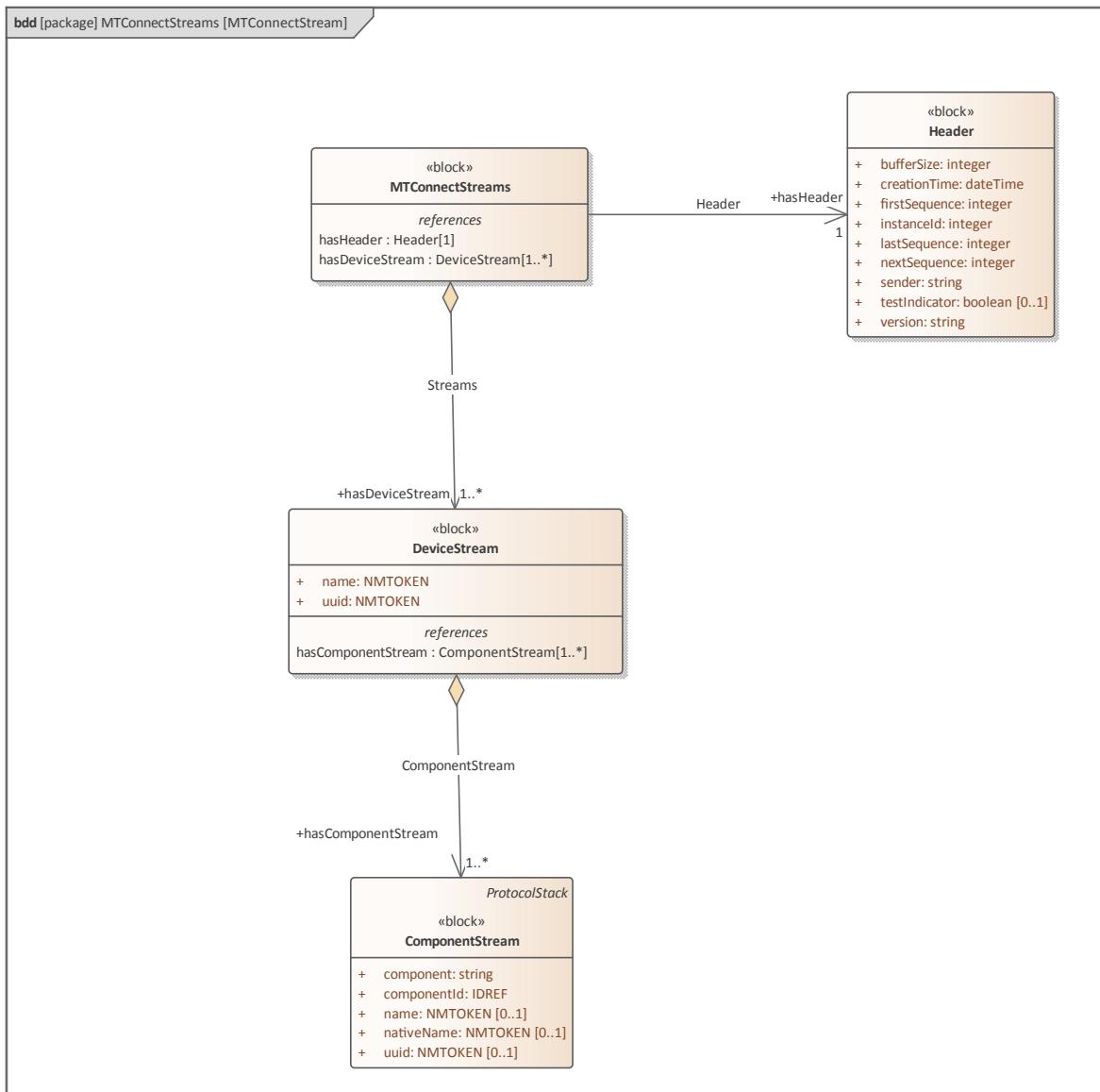


Figure 26: MTConnectStream

MTConnectStreams

Package in package 'MTConnect'

MTConnectStreams
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 11/4/2019

CONNECTORS

- ↗ **Nesting** Source -> Destination
 From: MTConnectStreams : Package, Public
 To: ObservationModel : Package, Public

ComponentStream

Block «block» in package 'MTConnectStreams'

ComponentStream
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/31/2019

OUTGOING STRUCTURAL RELATIONSHIPS

- ↳ Aggregation from «block» ComponentStream to «block» DeviceStream
 [Name is ComponentStream. Direction is 'Destination -> Source'.]
- ↳ Generalization from «block» ComponentStream to «block» ProtocolStack
 [Direction is 'Source -> Destination'.]

ATTRIBUTES

- ◆ component : string Public
 [Is static True. Containment is Not Specified.]
- ◆ componentId : IDREF Public
 [Is static True. Containment is Not Specified.]
- ◆ name : NMOKEN Public
 Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
 [Is static True. Containment is Not Specified.]
- ◆ nativeName : NMOKEN Public
 Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)
 [Is static True. Containment is Not Specified.]
- ◆ uuid : NMOKEN Public

ATTRIBUTES

Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False)

[Is static True. Containment is Not Specified.]

DeviceStream

Block «block» in package 'MTConnectStreams'

DeviceStream
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/31/2019

STRUCTURAL PART OF DeviceStream

⌚ hasComponentStream : Property

OUTGOING STRUCTURAL RELATIONSHIPS

⬅ Aggregation from «block» DeviceStream to «block» MTConnectStreams

[Name is Streams. Direction is 'Destination -> Source'.]

INCOMING STRUCTURAL RELATIONSHIPS

➡ Aggregation from «block» ComponentStream to «block» DeviceStream

[Name is ComponentStream. Direction is 'Destination -> Source'.]

ATTRIBUTES

◊ name : NMOKEN Public

[Is static True. Containment is Not Specified.]

◊ uuid : NMOKEN Public

[Is static True. Containment is Not Specified.]

hasComponentStream

Property owned by 'DeviceStream', in package 'MTConnectStreams'

hasComponentStream
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

Header

Block «block» in package 'MTConnectStreams'

Header
Version 1.0 Phase 1.0 Proposed
ssingh created on 9/30/2019. Last modified 10/31/2019

ATTRIBUTES	
◆ bufferSize : integer	Public [Is static True. Containment is Not Specified.]
◆ creationTime : dateTime	Public [Is static True. Containment is Not Specified.]
◆ firstSequence : integer	Public [Is static True. Containment is Not Specified.]
◆ instanceId : integer	Public [Is static True. Containment is Not Specified.]
◆ lastSequence : integer	Public [Is static True. Containment is Not Specified.]
◆ nextSequence : integer	Public [Is static True. Containment is Not Specified.]
◆ sender : string	Public [Is static True. Containment is Not Specified.]
◆ testIndicator : boolean	Public Multiplicity: ([0..1], Allow duplicates: 0, Is ordered: False) [Is static True. Containment is Not Specified.]
◆ version : string	Public [Is static True. Containment is Not Specified.]

ASSOCIATIONS	
Association (direction: Source -> Destination) Header Source: Public (Block) MTConnectStreams «block» Target: Public hasHeader (Block) Header «block» Cardinality: [1]	

MTConnectStreams

Block «block» in package 'MTConnectStreams'

MTConnectStreams
Version 1.0 Phase 1.0 Proposed
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STRUCTURAL PART OF MTConnectStreams

STRUCTURAL PART OF MTConnectStreams

hasDeviceStream : Property

hasHeader : Property

INCOMING STRUCTURAL RELATIONSHIPS

Aggregation from «block» DeviceStream to «block» MTConnectStreams

[Name is Streams. Direction is 'Destination -> Source'.]

ASSOCIATIONS

Association (direction: Source -> Destination) Header

Source: Public (Block) MTConnectStreams «block»

Target: Public hasHeader (Block) Header «block»

Cardinality: [1]

hasDeviceStream

Property owned by 'MTConnectStreams', in package 'MTConnectStreams'

hasDeviceStream
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

hasHeader

Property owned by 'MTConnectStreams', in package 'MTConnectStreams'

hasHeader
Version 1.0 Phase 1.0 Proposed
ssingh created on 10/29/2019. Last modified 10/29/2019

OPCUA

Package in package 'Protocols'

OPCUA

Version 1.0 Phase 1.0 Proposed
ssingh created on 10/31/2019. Last modified 11/1/2019

LINKS TO OTHER PACKAGES	
 Nesting from 'OPCUA' Package to 'ObservationModel' Package	Direction: Source -> Destination