



TKI | Tele-Kabel-Ingenieurgesellschaft mbH

TNIM - Data Dictionary

TNIM v2.0

Based on the GML version 3.2

CREATED WITH  **ENTERPRISE
ARCHITECT**

Table of Contents

TNIM - Introduction	3
TNIM - Elements diagram	4
TNIM - Models diagram	5
AdditionalAttribute (datatype)	6
Address (datatype)	7
Attenuation (datatype)	8
BasicElement	9
BasicElementModel	10
BasicModelElement	11
BasicSpatialElement	12
Building	13
BuildingUnit	14
Cabinet	15
CabinetModel	16
Cable	17
CableModel	18
CableTrunk	19
Cluster	20
Color (datatype)	21
ColorValue	22
Connector	23
ConnectorModel	24
Device	25
DeviceModel	26
Duct	27
DuctBundle	28
DuctFitting	29
DuctFittingModel	30
DuctInsertion	31
DuctInsertionModel	32
DuctModel	33
ElementRelationship	34
Fiber	35

FiberModel	36
GenericElement	37
Manhole	38
ManholeModel	39
Marker	40
MarkerModel	41
Overlength (datatype)	42
Patch	43
PatchPanel	44
PatchPanelModel	45
Person	46
Pole	47
PoleModel	48
PositionedReference (datatype)	49
RackOrientation (datatype)	50
RackPanel	51
RackPanelModel	52
Segment	53
SegmentModel	54
SpatialInformation	55
Splice	56
Splitter	57
SplitterModel	58
SplitterPath	59
SwitchingPoint	60
SwitchingPointModel	61
Tray	62
TrayModel	63

TNIM - Introduction

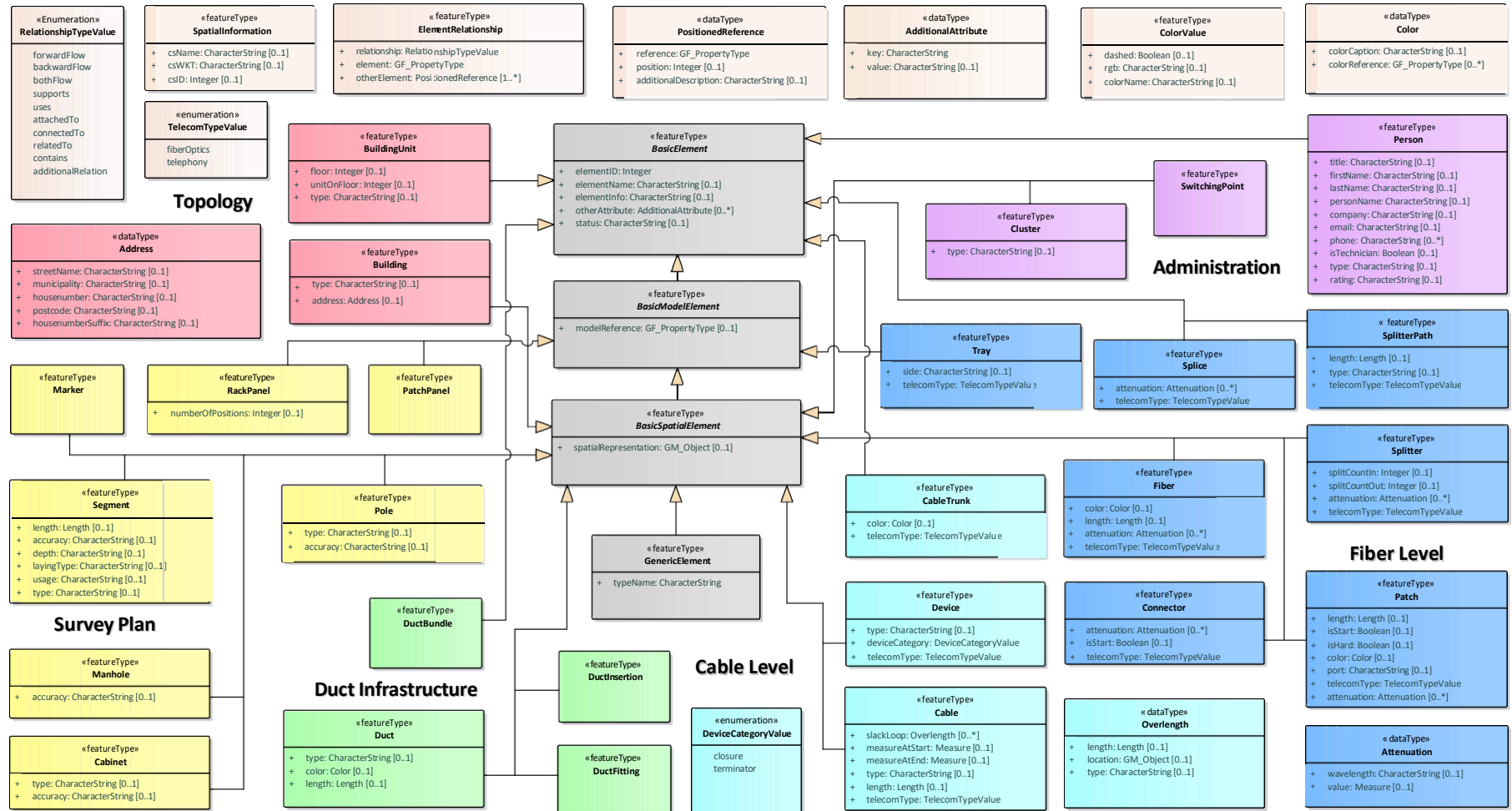
TNIM - Telecom Network Information Model - is an exchange format provided by TKI to map telecommunication networks from segment to the fiber optic level. It is stored as one XML file based upon GML 3.2 to interpret spatial representation.

TNIM contains three types of entities, that are feature types, data types and enumerations. Feature types are unique entities, which are further separated into elements (e.g. cables and fibers) and models to describe these elements in more detail. Most elements are based upon abstract basic elements that provide common attributes. Data types are information units used inside of features (e.g. addresses), enumerations describe circumstances from a limited number of options.

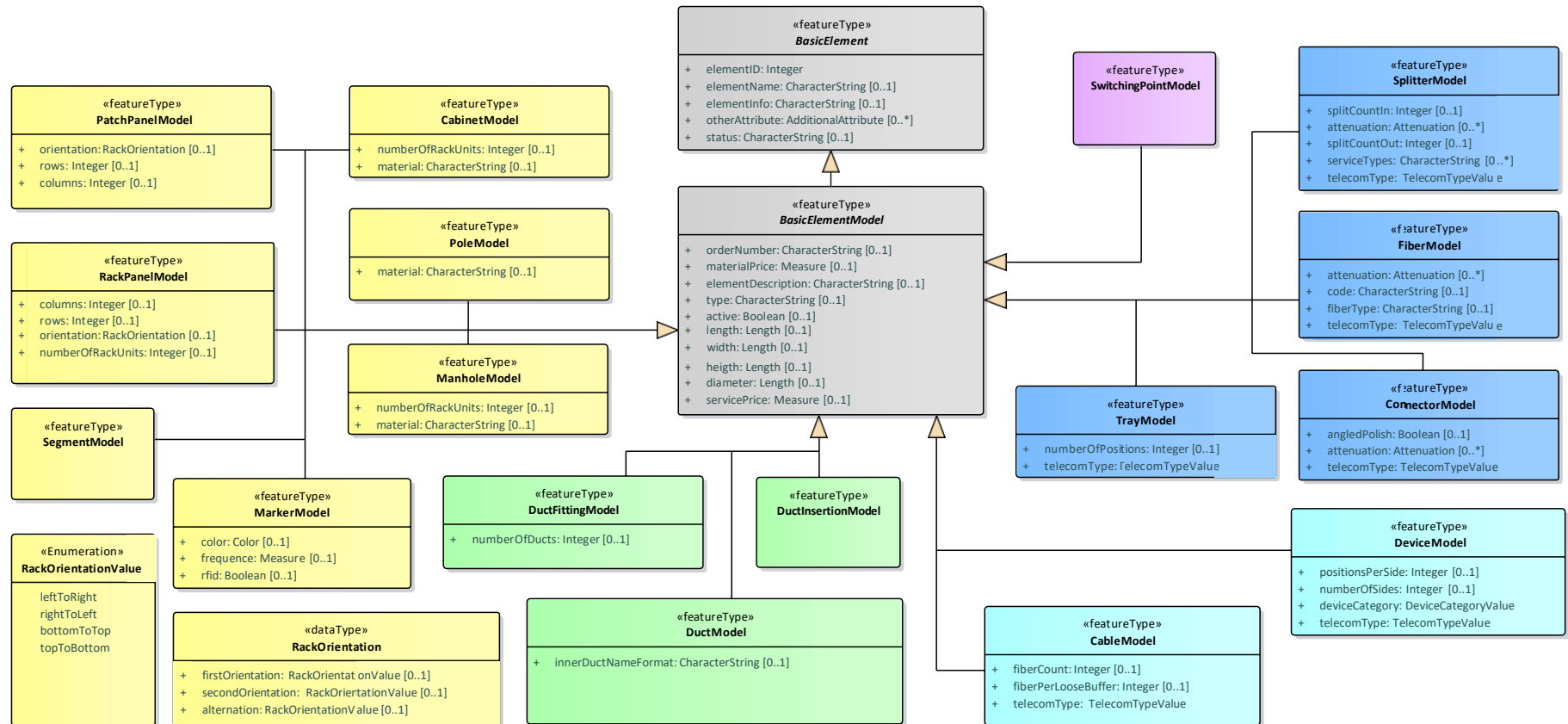
Aside the relation between elements and their models (in BasicModelElement), TNIM allows for a flexible interconnection between elements (using the ElementRelationship). An element relationship includes the parent element (e.g. a segment), any number of positioned child element (e.g. ducts) and a relation type value (e.g. 'contains'). The standard relationships in TNIM are listed in the external PDF file "TNIM Relationships" and in the following documentation for feature types.

An additional attribute can be used for any information that cannot be represented by an existing TNIM attribute (see *AdditionalAttribute*).

TNIM - Elements diagram



TNIM - Models diagram



AdditionalAttribute (datatype)

NOTES			
An Additional attribute that can either provide a value or refer to an element relationship.			
Attributes			
Name	Type	Card^y	Commentary
key	CharacterString		
value	CharacterString	[0..1]	

Address (datatype)

NOTES			
An address for the exact description of a location.			
Attributes			
Name	Type	Card^y	Commentary
streetName	CharacterString	[0..1]	
municipality	CharacterString	[0..1]	
houenumber	CharacterString	[0..1]	
postcode	CharacterString	[0..1]	
houenumberSuffix	CharacterString	[0..1]	

Attenuation (datatype)

NOTES			
A loss value that can be held by telecommunication elements and their models.			
Attributes			
Name	Type	Card^y	Commentary
wavelength	CharacterString	[0..1]	
value	Measure	[0..1]	

BasicElement

<i>NOTES</i>			
An abstract base element that includes standard attributes like ID and name.			
Attributes			
Name	Type	Card^y	Commentary
elementID	Integer		<i>unique ID</i>
elementName	CharacterString	[0..1]	
elementInfo	CharacterString	[0..1]	
otherAttribute	AdditionalAttribute	[0..*]	
status	CharacterString	[0..1]	

BasicElementModel

<i>NOTES</i>			
An abstract model base element that includes standard attributes like ID and name.			
Attributes			
Name	Type	Card ^y	Commentary
orderNumber	CharacterString	[0..1]	
materialPrice	Measure	[0..1]	
elementDescription	CharacterString	[0..1]	
type	CharacterString	[0..1]	
active	Boolean	[0..1]	
length	Length	[0..1]	
width	Length	[0..1]	
height	Length	[0..1]	
diameter	Length	[0..1]	
servicePrice	Measure	[0..1]	
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

BasicModelElement*NOTES*

An abstract base element that includes standard attributes like ID and name and can own an element model.

Attributes

Name	Type	Card^y	Commentary
modelReference	GF_PropertyType	[0..1]	
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

BasicSpatialElement

<i>NOTES</i>			
An abstract base element that includes standard attributes like ID and name and can own an element model and a spatial representation.			
Attributes			
Name	Type	Card^y	Commentary
spatialRepresentation	GM_Object	[0..1]	
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Building

<i>NOTES</i>			
<p>Describes a building at a given address.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • contains building units and persons • connected to cabinets, cables, devices, ducts, duct fittings, duct insertions, fibers, manholes, markers, patches, poles, segments, splices, splitter paths, splitters and switching points 			
Attributes			
Name	Type	Card ^y	Commentary
type	CharacterString	[0..1]	
address	Address	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

BuildingUnit*NOTES*

Describes an apartment or housing unit in a building with number and floor.

Attributes

Name	Type	Card^y	Commentary
floor	Integer	[0..1]	
unitOnFloor	Integer	[0..1]	
type	CharacterString	[0..1]	
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Cabinet

NOTES

Cabinets represent mountable node objects that can contain smaller devices and cables.

Relations:

- **contains** devices, duct fittings, duct insertions and rack panels
- **forward/backward/both flow** with segments

Attributes

Name	Type	Card ^y	Commentary
type	CharacterString	[0..1]	
accuracy	CharacterString	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

CabinetModel

<i>NOTES</i>			
A model that describes cabinets.			
Attributes			
Name	Type	Card ^y	Commentary
numberOfRackUnits	Integer	[0..1]	
material	CharacterString	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Cable

<i>NOTES</i>			
A cable used to convey data from one location to another.			
<i>Relations:</i>			
<ul style="list-style-type: none"> • contains fibers • forward/backward/both flow with devices 			
Attributes			
Name	Type	Card ^y	Commentary
slackLoop	Overlength	[0..*]	
measureAtStart	Measure	[0..1]	
measureAtEnd	Measure	[0..1]	
type	CharacterString	[0..1]	
length	Length	[0..1]	
telecomType	TelecomTypeValue		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

CableModel

<i>NOTES</i>			
A model that describes cables.			
Attributes			
Name	Type	Card ^y	Commentary
fiberCount	Integer	[0..1]	
fiberPerLooseBuffer	Integer	[0..1]	
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

CableTrunk*NOTES*

A coherent sequence of cable elements.

Relations:

- **contains** cables

Attributes

Name	Type	Card ^y	Commentary
color	Color	[0..1]	
telecomType	TelecomTypeValue		
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Cluster

<i>NOTES</i>			
An area in which spatial elements are grouped up.			
Attributes			
Name	Type	Card^y	Commentary
type	CharacterString	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Color (datatype)

NOTES			
A color caption with relation to the colors used.			
Attributes			
Name	Type	Card^y	Commentary
colorCaption	CharacterString	[0..1]	
colorReference	GF_PropertyType	[0..*]	

ColorValue*NOTES*

A named color used by various objects in the model.

Attributes

Name	Type	Card^y	Commentary
dashed	Boolean	[0..1]	
rgb	CharacterString	[0..1]	
colorName	CharacterString	[0..1]	

Connector

<i>NOTES</i>			
<p>A connector terminates the end of an optical fiber, and enables quicker connection and disconnection than splicing.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • connected to patches and splices • forward/backward/both flow with fibers, patches and splitter paths 			
Attributes			
Name	Type	Card ^y	Commentary
attenuation	Attenuation	[0..*]	
isStart	Boolean	[0..1]	
telecomType	TelecomTypeValue		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

ConnectorModel

<i>NOTES</i>			
A model that describes connectors.			
Attributes			
Name	Type	Card^y	Commentary
angledPolish	Boolean	[0..1]	
attenuation	Attenuation	[0..*]	
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Device

NOTES

A strong container with trays and splices.

Relations:

- **contains** cable trunks, connectors, patches, splices, splitters and trays
- **connected to** patches
- **forward/backward/both flow** with cables

Attributes

Name	Type	Card ^y	Commentary
type	CharacterString	[0..1]	
deviceCategory	DeviceCategoryValue		
telecomType	TelecomTypeValue		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DeviceModel

<i>NOTES</i>			
A model that describes telecom devices.			
Attributes			
Name	Type	Card ^y	Commentary
positionsPerSide	Integer	[0..1]	
numberOfSides	Integer	[0..1]	
deviceCategory	DeviceCategoryValue		
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Duct

NOTES			
<p>Ducts are an object to encase one or more telecom cables or other (smaller) telecom ducts, also known as sub duct.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • contains cables and ducts • connected to duct insertions • forward/backward/both flow with duct fittings and duct insertions 			
Attributes			
Name	Type	Card ^y	Commentary
type	CharacterString	[0..1]	
color	Color	[0..1]	
length	Length	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctBundle

<i>NOTES</i>			
A bundle of ducts.			
<i>Relations:</i>			
• contains ducts			
Attributes			
Name	Type	Card ^y	Commentary
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctFitting

NOTES

This element is used to connect multiple ducts.

Relations:

- **forward/backward/both flow** with ducts

Attributes

Name	Type	Card ^y	Commentary
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctFittingModel

<i>NOTES</i>			
A model that describes duct fittings.			
Attributes			
Name	Type	Card ^y	Commentary
numberOfDucts	Integer	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctInsertion

NOTES

A duct insertion that represents a house lead-in of a duct.

Relations:

- **forward/backward/both flow** with ducts

Attributes

Name	Type	Card ^y	Commentary
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctInsertionModel

<i>NOTES</i>			
A model that describes duct insertions.			
Attributes			
Name	Type	Card^y	Commentary
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

DuctModel

<i>NOTES</i>			
A model that describes ducts.			
<i>Relations:</i>			
<ul style="list-style-type: none"> • contains duct models 			
Attributes			
Name	Type	Card ^y	Commentary
innerDuctNameFormat	CharacterString	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

ElementRelationship

<i>NOTES</i>			
<p>Elements may be related to each other, such as a manhole containing a closure. A duct connects to a manhole or to the manhole's entry point (if applicable). The relationship between element and other elements (e.g., “connected to”, “supports”, “contains”) is also described.</p>			
Attributes			
Name	Type	Card^y	Commentary
relationship	RelationshipTypeValue		
element	GF_PropertyType		
otherElement	PositionedReference	[1..*]	

Fiber

<i>NOTES</i>			
A part of a telecom cable.			
<i>Relations:</i>			
<ul style="list-style-type: none"> • connected to patches • forward/backward/both flow with connectors, splices 			
Attributes			
Name	Type	Card ^y	Commentary
color	Color	[0..1]	
length	Length	[0..1]	
attenuation	Attenuation	[0..*]	
telecomType	TelecomTypeValue		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

FiberModel

<i>NOTES</i>			
A model that describes fibers.			
Attributes			
Name	Type	Card ^y	Commentary
attenuation	Attenuation	[0..*]	
code	CharacterString	[0..1]	
fiberType	CharacterString	[0..1]	
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

GenericElement*NOTES*

A general element with no defined purpose that can be used for customization.

Attributes

Name	Type	Card^y	Commentary
typeName	CharacterString		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Manhole

NOTES

Simple container object which may contain either single or multiple telecom networks objects.

Relations:

- **contains** devices, duct fittings, duct insertions and rack panels
- **forward/backward/both flow** with segments

Attributes

Name	Type	Card ^y	Commentary
accuracy	CharacterString	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

ManholeModel

<i>NOTES</i>			
A model that describes fibers.			
Attributes			
Name	Type	Card ^y	Commentary
numberOfRackUnits	Integer	[0..1]	
material	CharacterString	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Marker*NOTES*

A marker used to remember underground places.

Attributes

Name	Type	Card^y	Commentary
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

MarkerModel

<i>NOTES</i>			
A model that describes markers.			
Attributes			
Name	Type	Card ^y	Commentary
color	Color	[0..1]	
frequence	Measure	[0..1]	
rfid	Boolean	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Overlength (datatype)

NOTES			
An extra length of an telecom cable located on a point.			
Attributes			
Name	Type	Card^y	Commentary
length	Length	[0..1]	
location	GM_Object	[0..1]	
type	CharacterString	[0..1]	

Patch

<i>NOTES</i>			
A connection between connectors or one connector and a port or splice.			
<i>Relations:</i>			
<ul style="list-style-type: none"> • forward/backward/both flow with connectors and splices 			
Attributes			
Name	Type	Card ^y	Commentary
length	Length	[0..1]	
isStart	Boolean	[0..1]	
isHard	Boolean	[0..1]	
color	Color	[0..1]	
port	CharacterString	[0..1]	
telecomType	TelecomTypeValue		
attenuation	Attenuation	[0..*]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

PatchPanel

NOTES

A part of a rack that holds connectors.

Relations:

- **contains** connectors

Attributes

Name	Type	Card ^y	Commentary
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

PatchPanelModel

<i>NOTES</i>			
A model that describes patch panels.			
Attributes			
Name	Type	Card ^y	Commentary
orientation	RackOrientation	[0..1]	
rows	Integer	[0..1]	
columns	Integer	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Person

<i>NOTES</i>			
<p>Persons can have different positions in this model e.g. as customer, technician or supplier.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • uses buildings, cabinets, cables, connectors, devices, ducts, duct fittings, duct insertions, fibers, manholes, markers, patches, poles, segments, splices, splitters, splitter path and switching points • supports buildings, cabinets, cables, connectors, devices, ducts, duct fittings, duct insertions, fibers, manholes, markers, patches, poles, segments, splices, splitter path, splitters and switching points 			
Attributes			
Name	Type	Card ^y	Commentary
title	CharacterString	[0..1]	
firstName	CharacterString	[0..1]	
lastName	CharacterString	[0..1]	
personName	CharacterString	[0..1]	
company	CharacterString	[0..1]	
email	CharacterString	[0..1]	
phone	CharacterString	[0..*]	
isTechnician	Boolean	[0..1]	
type	CharacterString	[0..1]	
rating	CharacterString	[0..1]	
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Pole

<i>NOTES</i>			
Simple pole object which may hold telecom network objects.			
<i>Relations:</i>			
<ul style="list-style-type: none"> • contains devices, duct fittings, duct insertions and rack panels • forward/backward/both flow with segments 			
Attributes			
Name	Type	Card ^y	Commentary
type	CharacterString	[0..1]	
accuracy	CharacterString	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

PoleModel

<i>NOTES</i>			
A model that describes poles.			
Attributes			
Name	Type	Card^y	Commentary
material	CharacterString	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

PositionedReference (datatype)

NOTES			
An element that has an assigned position in a given context.			
Attributes			
Name	Type	Card^y	Commentary
reference	GF_PropertyType		
position	Integer	[0..1]	
additionalDescription	CharacterString	[0..1]	

RackOrientation (datatype)

NOTES			
<p>This defines the orientation of panels inside a rack. Values can be divided in two groups, one is horizontal (leftToRight & rightToLeft), one is vertical (bottomToTop & topToBottom). RackOrientation must have a value from one group as first orientation and a value from the other group as second orientation. For alternation, any value of a group represents the alignment of that group. No alternation value results in no alternation.</p>			
Attributes			
Name	Type	Card^y	Commentary
firstOrientation	RackOrientationValue	[0..1]	
secondOrientation	RackOrientationValue	[0..1]	
alternation	RackOrientationValue	[0..1]	

RackPanel

NOTES

A main part of a rack that contains patch panels and trays.

Relations:

- **contains** patch panels and trays

Attributes

Name	Type	Card ^y	Commentary
numberOfPositions	Integer	[0..1]	
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

RackPanelModel

<i>NOTES</i>			
A model that describes rack panels.			
Attributes			
Name	Type	Card ^y	Commentary
columns	Integer	[0..1]	
rows	Integer	[0..1]	
orientation	RackOrientation	[0..1]	
numberOfRackUnits	Integer	[0..1]	
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Segment

Attributes			
Name	Type	Card ^y	Commentary
length	Length	[0..1]	
accuracy	CharacterString	[0..1]	
depth	CharacterString	[0..1]	
layingType	CharacterString	[0..1]	
usage	CharacterString	[0..1]	
type	CharacterString	[0..1]	
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

NOTES

A segment is a spatial placeholder for one or more linear elements, sharing the same path. A segment can be for example a trench containing multiple linear elements like ducts and/or cables. Another example can be the path a telecom cable follows along a facade.

Relations:

- **contains** cables and ducts
- **forward/backward/both flow** with cabinets, manholes, poles and segments

SegmentModel

<i>NOTES</i>			
A model that describes segments.			
Attributes			
Name	Type	Card^y	Commentary
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

SpatialInformation*NOTES*

There should be exactly one Spatial Information to describe the coordinate system of the network.

Attributes

Name	Type	Card^y	Commentary
csName	CharacterString	[0..1]	
csWKT	CharacterString	[0..1]	
csID	Integer	[0..1]	

Splice

<i>NOTES</i>			
<p>A permanent end-to-end connection between two fibers that are fused using heat.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • connected to fibers, patches and splitter paths • forward/backward/both flow with fibers, patches and splitter paths 			
Attributes			
Name	Type	Card ^y	Commentary
attenuation	Attenuation	[0..*]	
telecomType	TelecomTypeValue		
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Splitter

NOTES			
<p>An optical fiber tandem device with many input and output terminals.</p> <p><i>Relations:</i></p> <ul style="list-style-type: none"> • contains splitter paths • forward/backward/both flow with splitter paths 			
Attributes			
Name	Type	Card ^y	Commentary
splitCountIn	Integer	[0..1]	
splitCountOut	Integer	[0..1]	
attenuation	Attenuation	[0..*]	
telecomType	TelecomTypeValue		
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

SplitterModel

<i>NOTES</i>			
A model that describes splitters.			
Attributes			
Name	Type	Card ^y	Commentary
splitCountIn	Integer	[0..1]	
attenuation	Attenuation	[0..*]	
splitCountOut	Integer	[0..1]	
serviceTypes	CharacterString	[0..*]	
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

SplitterPath

NOTES

A connection between a splitter and input or output terminal and a splice or connector.

Relations:

- **forward/backward/both flow** with connectors, splices and splitters

Attributes

Name	Type	Card ^y	Commentary
length	Length	[0..1]	
type	CharacterString	[0..1]	
telecomType	TelecomTypeValue		
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

SwitchingPoint

NOTES

A point of presence that contains telecom appurtenances.

Relations:

- **contains** devices and patches

Attributes

Name	Type	Card ^y	Commentary
spatialRepresentation	GM_Object	[0..1]	parent class: BasicSpatialElement
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

SwitchingPointModel

<i>NOTES</i>			
A model that describes switching points.			
Attributes			
Name	Type	Card ^y	Commentary
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
heigth	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

Tray

NOTES

A container to hold multiple fiber optic splices.

Relations:

- **contains** splices and splitters

Attributes

Name	Type	Card ^y	Commentary
side	CharacterString	[0..1]	
telecomType	TelecomTypeValue		
modelReference	GF_PropertyType	[0..1]	parent class: BasicModelElement
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement

TrayModel

<i>NOTES</i>			
A model that describes trays.			
Attributes			
Name	Type	Card ^y	Commentary
numberOfPositions	Integer	[0..1]	
telecomType	TelecomTypeValue		
active	Boolean	[0..1]	parent class: BasicElementModel
diameter	Length	[0..1]	parent class: BasicElementModel
elementDescription	CharacterString	[0..1]	parent class: BasicElementModel
height	Length	[0..1]	parent class: BasicElementModel
length	Length	[0..1]	parent class: BasicElementModel
materialPrice	Measure	[0..1]	parent class: BasicElementModel
orderNumber	CharacterString	[0..1]	parent class: BasicElementModel
servicePrice	Measure	[0..1]	parent class: BasicElementModel
type	CharacterString	[0..1]	parent class: BasicElementModel
width	Length	[0..1]	parent class: BasicElementModel
elementID	Integer		parent class: BasicElement
elementInfo	CharacterString	[0..1]	parent class: BasicElement
elementName	CharacterString	[0..1]	parent class: BasicElement
otherAttribute	AdditionalAttribute	[0..*]	parent class: BasicElement
status	CharacterString	[0..1]	parent class: BasicElement