

Yamcs PyMDB

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This library provides a Pythonic way to describe a Yamcs Mission Database.

1. Installing

Install with pip:

```
pip install --upgrade yamcs-pymdb
```


2. How it works

With PyMDB you create one or more System objects. A typical Yamcs Mission Database has at least one system representing the target spacecraft (or payload).

```
from yamcs.pymdb import *

satellite = System("MySat")
com = Subsystem(satellite, "COM")
eps = Subsystem(satellite, "EPS")
fc = Subsystem(satellite, "FC")

gse = System("GSE")

# ... add TM/TC definitions to each system
```

Then use PyMDB to generate an XTCE description (= XML file), one for each top-level system.

```
with open("satellite.xml", "wt") as f:
    satellite.dump(f)

with open("gse.xml", "wt") as f:
    gse.dump(f)
```

The generated files look somewhat like this:

satellite.xml

```
<?xml version="1.0" ?>
<SpaceSystem xmlns="http://www.omg.org/spec/XTCE/20180204" name="MySat">
  <TelemetryMetaData/>
  <CommandMetaData/>
  <SpaceSystem name="COM">
    <TelemetryMetaData/>
    <CommandMetaData/>
  </SpaceSystem>
  <SpaceSystem name="EPS">
    <TelemetryMetaData/>
    <CommandMetaData/>
  </SpaceSystem>
  <SpaceSystem name="FC">
    <TelemetryMetaData/>
    <CommandMetaData/>
  </SpaceSystem>
</SpaceSystem>
```

gse.xml

```
<?xml version="1.0" ?>
<SpaceSystem xmlns="http://www.omg.org/spec/XTCE/20180204" name="GSE">
  <TelemetryMetaData/>
  <CommandMetaData/>
</SpaceSystem>
```

Finally, reference the generated XML files in the mdb section of your Yamcs instance configuration file:

`etc/yamcs.instance.yaml`

```
mdb:
- type: xtce
  args:
    file: mdb/satellite.xml
- type: xtce
  args:
    file: mdb/gse.xml
```

Each time you make changes to the Python definition, regenerate the XML files, then restart Yamcs. Because the description is in Python, the changes are well suited for tracking with a standard version control system like git.

The autogenerated XML files are in XTCE 1.2 syntax, which is natively supported by Yamcs.

3. Table of Contents

3.1 Systems

3.1.1 System

`class yamcs.pyddb.System`

Bases: `object`¹

The top-level system is the root element for the set of metadata necessary to monitor and command a space device, such as a satellite.

A system defines a namespace.

Metadata areas include: telemetry, calibration, alarm, algorithms and commands.

A system may have child `Subsystem` (page 9)s, forming a system tree.

`__init__`(name: `str`², aliases: `Optional`³[`Mapping`⁴[`str`⁵, `str`⁶]] = None, short_description: `Optional`⁷[`str`⁸] = None, long_description: `Optional`⁹[`str`¹⁰] = None, extra: `Optional`¹¹[`Mapping`¹²[`str`¹³, `str`¹⁴]] = None)

property algorithms: `list`¹⁵[`Algorithm` (page 33)]

Algorithms directly belonging to this system

aliases: `dict`¹⁶[`str`¹⁷, `str`¹⁸]

Alternative names, keyed by namespace

property commands: `list`¹⁹[`Command` (page 38)]

Commands directly belonging to this system

property containers: `list`²⁰[`Container` (page 30)]

Containers directly belonging to this system

`dump`(fp, indent: `str`²¹ = ' ', top_comment: `bool`²² / `str`²³ = True) → `None`²⁴

Serialize this system in XTCE format to a file-like object

`dumps`(indent: `str`²⁵ = ' ', top_comment: `bool`²⁶ / `str`²⁷ = True) → `str`²⁸

Serialize this system to an XTCE formatted string

extra: `dict`²⁹[`str`³⁰, `str`³¹]

Arbitrary information, keyed by name

`find_algorithm`(name: `str`³²) → `Algorithm` (page 33)

Find an algorithm belonging directly to this system.

Raises an exception if no algorithm is found

`find_command`(name: `str`³³) → `Command` (page 38)

Find a command belonging directly to this system.

Raises an exception if no command is found

find_container(*name*: [str](#)³⁴) → [Container](#) (page 30)
 Find a container belonging directly to this system.
 Raises an exception if no container is found

find_parameter(*name*: [str](#)³⁵) → [Parameter](#) (page 13)
 Find a parameter belonging directly to this system.
 Raises an exception if no parameter is found

find_subsystem(*name*: [str](#)³⁶) → [Subsystem](#) (page 9)
 Find a subsystem belonging directly to this system.
 Raises an exception if no subsystem is found

long_description: [str](#)³⁷ | [None](#)³⁸
 Multiline description

name: [str](#)³⁹
 Short name of this system

property parameters: [list](#)⁴⁰[[Parameter](#) (page 13)]
 Parameters directly belonging to this system

property qualified_name: [str](#)⁴¹

remove_algorithm(*name*: [str](#)⁴²) → [bool](#)⁴³
 Removes an algorithm directly belonging to this system.
 Raises an exception if no such algorithm exists

remove_command(*name*: [str](#)⁴⁴) → [bool](#)⁴⁵
 Removes a command directly belonging to this system.
 Raises an exception if no such command exists

remove_container(*name*: [str](#)⁴⁶) → [bool](#)⁴⁷
 Removes a container directly belonging to this system.
 Raises an exception if no such container exists

remove_parameter(*name*: [str](#)⁴⁸) → [bool](#)⁴⁹
 Removes a parameter directly belonging to this system.
 Raises an exception if no such parameter exists

remove_subsystem(*name*: [str](#)⁵⁰) → [bool](#)⁵¹
 Removes a subsystem directly belonging to this system.
 Raises an exception if no such subsystem exists

property root: [System](#) (page 7)
 The top-most system

short_description: [str](#)⁵² | [None](#)⁵³
 Online description

property subsystems: [list](#)⁵⁴[[Subsystem](#) (page 9)]
 Subsystems directly belonging to this system

3.1.2 Subsystem

`class yamcs.pyddb.Subsystem`

Bases: [System](#) (page 7)

A subsystem is identical to a [System](#) (page 7), but in addition keeps a reference to its parent system.

`__init__`(system: [System](#) (page 7), name: [str](#)⁵⁵, aliases: [Optional](#)⁶⁶[[Mapping](#)⁵⁷[[str](#)⁵⁸, [str](#)⁵⁹]] = None, short_description: [Optional](#)⁶⁰[[str](#)⁶¹] = None, long_description: [Optional](#)⁶²[[str](#)⁶³] = None, extra: [Optional](#)⁶⁴[[Mapping](#)⁶⁵[[str](#)⁶⁶, [str](#)⁶⁷]] = None)

property algorithms: [list](#)⁶⁸[[Algorithm](#) (page 33)]

Algorithms directly belonging to this system

-
- ¹ <https://docs.python.org/3/library/functions.html#object>
 - ² <https://docs.python.org/3/library/stdtypes.html#str>
 - ³ <https://docs.python.org/3/library/typing.html#typing.Optional>
 - ⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
 - ⁵ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁶ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
 - ⁸ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
 - ¹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
 - ¹¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
 - ¹² <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
 - ¹³ <https://docs.python.org/3/library/stdtypes.html#str>
 - ¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
 - ¹⁵ <https://docs.python.org/3/library/stdtypes.html#list>
 - ¹⁶ <https://docs.python.org/3/library/stdtypes.html#dict>
 - ¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
 - ¹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
 - ¹⁹ <https://docs.python.org/3/library/stdtypes.html#list>
 - ²⁰ <https://docs.python.org/3/library/stdtypes.html#list>
 - ²¹ <https://docs.python.org/3/library/stdtypes.html#str>
 - ²² <https://docs.python.org/3/library/functions.html#bool>
 - ²³ <https://docs.python.org/3/library/stdtypes.html#str>
 - ²⁴ <https://docs.python.org/3/library/constants.html#None>
 - ²⁵ <https://docs.python.org/3/library/stdtypes.html#str>
 - ²⁶ <https://docs.python.org/3/library/functions.html#bool>
 - ²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
 - ²⁸ <https://docs.python.org/3/library/stdtypes.html#str>
 - ²⁹ <https://docs.python.org/3/library/stdtypes.html#dict>
 - ³⁰ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³¹ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³² <https://docs.python.org/3/library/stdtypes.html#str>
 - ³³ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³⁴ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³⁵ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³⁷ <https://docs.python.org/3/library/stdtypes.html#str>
 - ³⁸ <https://docs.python.org/3/library/constants.html#None>
 - ³⁹ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴⁰ <https://docs.python.org/3/library/stdtypes.html#list>
 - ⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴² <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴³ <https://docs.python.org/3/library/functions.html#bool>
 - ⁴⁴ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴⁵ <https://docs.python.org/3/library/functions.html#bool>
 - ⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴⁷ <https://docs.python.org/3/library/functions.html#bool>
 - ⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁴⁹ <https://docs.python.org/3/library/functions.html#bool>
 - ⁵⁰ <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁵¹ <https://docs.python.org/3/library/functions.html#bool>
 - ⁵² <https://docs.python.org/3/library/stdtypes.html#str>
 - ⁵³ <https://docs.python.org/3/library/constants.html#None>
 - ⁵⁴ <https://docs.python.org/3/library/stdtypes.html#list>

aliases: `dict69[str70, str71]`
Alternative names, keyed by namespace

property commands: `list72[Command (page 38)]`
Commands directly belonging to this system

property containers: `list73[Container (page 30)]`
Containers directly belonging to this system

dump(*fp*, *indent*: str⁷⁴ = ' ', *top_comment*: bool⁷⁵ | str⁷⁶ = True) → None⁷⁷
Serialize this system in XTCE format to a file-like object

dumps(*indent*: str⁷⁸ = ' ', *top_comment*: bool⁷⁹ | str⁸⁰ = True) → str⁸¹
Serialize this system to an XTCE formatted string

extra: `dict82[str83, str84]`
Arbitrary information, keyed by name

find_algorithm(*name*: str⁸⁵) → Algorithm (page 33)
Find an algorithm belonging directly to this system.
Raises an exception if no algorithm is found

find_command(*name*: str⁸⁶) → Command (page 38)
Find a command belonging directly to this system.
Raises an exception if no command is found

find_container(*name*: str⁸⁷) → Container (page 30)
Find a container belonging directly to this system.
Raises an exception if no container is found

find_parameter(*name*: str⁸⁸) → Parameter (page 13)
Find a parameter belonging directly to this system.
Raises an exception if no parameter is found

find_subsystem(*name*: str⁸⁹) → Subsystem (page 9)
Find a subsystem belonging directly to this system.
Raises an exception if no subsystem is found

long_description: str⁹⁰ | None⁹¹
Multiline description

name: str⁹²
Short name of this system

property parameters: `list93[Parameter (page 13)]`
Parameters directly belonging to this system

property qualified_name: str⁹⁴
Fully qualified name of this system (absolute path)

remove_algorithm(*name*: str⁹⁵) → bool⁹⁶
Removes an algorithm directly belonging to this system.
Raises an exception if no such algorithm exists

remove_command(*name*: str⁹⁷) → bool⁹⁸
Removes a command directly belonging to this system.
Raises an exception if no such command exists

remove_container(*name*: [str](#)⁹⁹) → [bool](#)¹⁰⁰

Removes a container directly belonging to this system.

Raises an exception if no such container exists

remove_parameter(*name*: [str](#)¹⁰¹) → [bool](#)¹⁰²

Removes a parameter directly belonging to this system.

Raises an exception if no such parameter exists

remove_subsystem(*name*: [str](#)¹⁰³) → [bool](#)¹⁰⁴

Removes a subsystem directly belonging to this system.

Raises an exception if no such subsystem exists

property root: [System](#) (page 7)

The top-most system

short_description: [str](#)¹⁰⁵ | [None](#)¹⁰⁶

Online description

property subsystems: [list](#)¹⁰⁷[[Subsystem](#) (page 9)]

Subsystems directly belonging to this system

system: [System](#) (page 7)

Parent system

3.2 Parameters

3.2.1 DataSource

`class yamcs.pyddb.DataSource`

Bases: `Enum`¹⁰⁸

The nature of the source entity for which a parameter receives a value

TELEMETERED = 1

A telemetered parameter is one that will have values in telemetry

DERIVED = 2

A derived parameter is one that is calculated, usually by an *Algorithm* (page 33)

55 <https://docs.python.org/3/library/stdtypes.html#str>
56 <https://docs.python.org/3/library/typing.html#typing.Optional>
57 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
58 <https://docs.python.org/3/library/stdtypes.html#str>
59 <https://docs.python.org/3/library/stdtypes.html#str>
60 <https://docs.python.org/3/library/typing.html#typing.Optional>
61 <https://docs.python.org/3/library/stdtypes.html#str>
62 <https://docs.python.org/3/library/typing.html#typing.Optional>
63 <https://docs.python.org/3/library/stdtypes.html#str>
64 <https://docs.python.org/3/library/typing.html#typing.Optional>
65 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
66 <https://docs.python.org/3/library/stdtypes.html#str>
67 <https://docs.python.org/3/library/stdtypes.html#str>
68 <https://docs.python.org/3/library/stdtypes.html#list>
69 <https://docs.python.org/3/library/stdtypes.html#dict>
70 <https://docs.python.org/3/library/stdtypes.html#str>
71 <https://docs.python.org/3/library/stdtypes.html#str>
72 <https://docs.python.org/3/library/stdtypes.html#list>
73 <https://docs.python.org/3/library/stdtypes.html#list>
74 <https://docs.python.org/3/library/stdtypes.html#str>
75 <https://docs.python.org/3/library/functions.html#bool>
76 <https://docs.python.org/3/library/stdtypes.html#str>
77 <https://docs.python.org/3/library/constants.html#None>
78 <https://docs.python.org/3/library/stdtypes.html#str>
79 <https://docs.python.org/3/library/functions.html#bool>
80 <https://docs.python.org/3/library/stdtypes.html#str>
81 <https://docs.python.org/3/library/stdtypes.html#str>
82 <https://docs.python.org/3/library/stdtypes.html#dict>
83 <https://docs.python.org/3/library/stdtypes.html#str>
84 <https://docs.python.org/3/library/stdtypes.html#str>
85 <https://docs.python.org/3/library/stdtypes.html#str>
86 <https://docs.python.org/3/library/stdtypes.html#str>
87 <https://docs.python.org/3/library/stdtypes.html#str>
88 <https://docs.python.org/3/library/stdtypes.html#str>
89 <https://docs.python.org/3/library/stdtypes.html#str>
90 <https://docs.python.org/3/library/stdtypes.html#str>
91 <https://docs.python.org/3/library/constants.html#None>
92 <https://docs.python.org/3/library/stdtypes.html#str>
93 <https://docs.python.org/3/library/stdtypes.html#list>
94 <https://docs.python.org/3/library/stdtypes.html#str>
95 <https://docs.python.org/3/library/stdtypes.html#str>
96 <https://docs.python.org/3/library/functions.html#bool>
97 <https://docs.python.org/3/library/stdtypes.html#str>
98 <https://docs.python.org/3/library/functions.html#bool>
99 <https://docs.python.org/3/library/stdtypes.html#str>
100 <https://docs.python.org/3/library/functions.html#bool>
101 <https://docs.python.org/3/library/stdtypes.html#str>
102 <https://docs.python.org/3/library/functions.html#bool>
103 <https://docs.python.org/3/library/stdtypes.html#str>
104 <https://docs.python.org/3/library/functions.html#bool>
105 <https://docs.python.org/3/library/stdtypes.html#str>
106 <https://docs.python.org/3/library/constants.html#None>
107 <https://docs.python.org/3/library/stdtypes.html#list>

CONSTANT = 3

A constant parameter is one that is used as a constant in the system (e.g. a vehicle id)

LOCAL = 4

A local parameter is one that is used purely by the software locally (e.g. a ground command counter)

GROUND = 5

A ground parameter is one that is generated by an asset which is not the spacecraft

3.2.2 Parameter

class yamcs.pyMDB.Parameter

Bases: [DataType](#) (page 64)

Base class for a telemetry parameter.

If parameters are to be used as entries of telemetry or command containers, an encoding should also be specified, describing the raw encoding.

Implementations are: [AbsoluteTimeParameter](#) (page 14), [BinaryParameter](#) (page 16), [BooleanParameter](#) (page 23), [EnumeratedParameter](#) (page 25), [FloatParameter](#) (page 17), [IntegerParameter](#) (page 19) and [StringParameter](#) (page 21).

And complex parameters [AggregateParameter](#) (page 27) and [ArrayParameter](#) (page 28). These do not directly specify an encoding, but group together other parameters.

Each of these implementations matches a native engineering type in Yamcs.

```
__init__(system: System (page 7), name: str109, *, aliases: Mapping[str110, str111] | None112 =  
None, data_source: DataSource (page 12) = DataSource.TELEMETERED, initial_value:  
Any = None, persistent: bool113 = True, short_description: str114 | None115 = None,  
long_description: str116 | None117 = None, extra: Mapping[str118, str119] | None120 = None,  
units: str121 | None122 = None, encoding: Encoding (page 55) | None123 = None) →  
None124
```

aliases: [dict](#)¹²⁵[[str](#)¹²⁶, [str](#)¹²⁷]

Alternative names, keyed by namespace

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)¹²⁸

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹²⁹[[str](#)¹³⁰, [str](#)¹³¹]

Arbitrary information, keyed by name

initial_value: Any

Initial value

long_description: [str](#)¹³² | [None](#)¹³³

Multiline description

name: [str](#)¹³⁴

Short name of this parameter

¹⁰⁸ <https://docs.python.org/3/library/enum.html#enum.Enum>

persistent: [bool](#)¹³⁵

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 13) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property qualified_name: [str](#)¹³⁶

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)¹³⁷ | [None](#)¹³⁸

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)¹³⁹ | [None](#)¹⁴⁰

Engineering units

3.2.3 Basic parameters

class `yamcs.pyMDB.AbsoluteTimeParameter`

Bases: [Parameter](#) (page 13), [AbsoluteTimeDataType](#) (page 65)

A parameter where engineering values represent an instant in time

__init__ (system: [System](#) (page 7), name: [str](#)¹⁴¹, reference: [Epoch](#) (page 63) | [datetime](#) | [AbsoluteTimeParameter](#) (page 14), aliases: [Mapping](#)[[str](#)¹⁴², [str](#)¹⁴³] | [None](#)¹⁴⁴ = None, data_source: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), initial_value: Any = None, persistent: [bool](#)¹⁴⁵ = True, short_description: [str](#)¹⁴⁶ | [None](#)¹⁴⁷ = None, long_description: [str](#)¹⁴⁸ | [None](#)¹⁴⁹ = None, extra: [Mapping](#)[[str](#)¹⁵⁰, [str](#)¹⁵¹] | [None](#)¹⁵² = None, units: [str](#)¹⁵³ | [None](#)¹⁵⁴ = None, encoding: [TimeEncoding](#) | [None](#)¹⁵⁵ = None) → [None](#)¹⁵⁶

¹⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹² <https://docs.python.org/3/library/constants.html#None>
¹¹³ <https://docs.python.org/3/library/functions.html#bool>
¹¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹⁵ <https://docs.python.org/3/library/constants.html#None>
¹¹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹⁷ <https://docs.python.org/3/library/constants.html#None>
¹¹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹¹⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁰ <https://docs.python.org/3/library/constants.html#None>
¹²¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²² <https://docs.python.org/3/library/constants.html#None>
¹²³ <https://docs.python.org/3/library/constants.html#None>
¹²⁴ <https://docs.python.org/3/library/constants.html#None>
¹²⁵ <https://docs.python.org/3/library/stdtypes.html#dict>
¹²⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁸ <https://docs.python.org/3/library/constants.html#None>
¹²⁹ <https://docs.python.org/3/library/stdtypes.html#dict>
¹³⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³² <https://docs.python.org/3/library/stdtypes.html#str>
¹³³ <https://docs.python.org/3/library/constants.html#None>
¹³⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁵ <https://docs.python.org/3/library/functions.html#bool>
¹³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁸ <https://docs.python.org/3/library/constants.html#None>
¹³⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁰ <https://docs.python.org/3/library/constants.html#None>

aliases: `dict`¹⁵⁷[`str`¹⁵⁸, `str`¹⁵⁹]

Alternative names, keyed by namespace

data_source: `DataSource` (page 12)

The nature of the source entity for which this parameter receives a value

encoding: `Encoding` (page 55) | `None`¹⁶⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: `dict`¹⁶¹[`str`¹⁶², `str`¹⁶³]

Arbitrary information, keyed by name

initial_value: `Any`

Initial value

long_description: `str`¹⁶⁴ | `None`¹⁶⁵

Multiline description

name: `str`¹⁶⁶

Short name of this parameter

persistent: `bool`¹⁶⁷

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If `initial_value` (page 15) is set too, attr:`initial_value` is only used once (when there is no other value to persist).

property_qualified_name: `str`¹⁶⁸

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as `/A/B/C`

reference: `Epoch` (page 63) | `datetime` | `AbsoluteTimeParameter` (page 14)

short_description: `str`¹⁶⁹ | `None`¹⁷⁰

Online description

system: `System` (page 7)

System this parameter belongs to

units: `str`¹⁷¹ | `None`¹⁷²

Engineering units

class yamcs.pyddb.BinaryParameter

Bases: [Parameter](#) (page 13), [BinaryDataType](#) (page 68)

A parameter where engineering values represent binary

__init__(system: [System](#) (page 7), name: [str](#)¹⁷³, min_length: [int](#)¹⁷⁴ | [None](#)¹⁷⁵ = None, max_length: [int](#)¹⁷⁶ | [None](#)¹⁷⁷ = None, aliases: Mapping[[str](#)¹⁷⁸, [str](#)¹⁷⁹] | [None](#)¹⁸⁰ = None, data_source: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), initial_value: Any = None, persistent: [bool](#)¹⁸¹ = True, short_description: [str](#)¹⁸² | [None](#)¹⁸³ = None, long_description: [str](#)¹⁸⁴ | [None](#)¹⁸⁵ = None, extra: Mapping[[str](#)¹⁸⁶, [str](#)¹⁸⁷] | [None](#)¹⁸⁸ = None, units: [str](#)¹⁸⁹ | [None](#)¹⁹⁰ = None, encoding: [Encoding](#) (page 55) | [None](#)¹⁹¹ = None) → [None](#)¹⁹²

aliases: [dict](#)¹⁹³[[str](#)¹⁹⁴, [str](#)¹⁹⁵]

Alternative names, keyed by namespace

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)¹⁹⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁹⁷[[str](#)¹⁹⁸, [str](#)¹⁹⁹]

Arbitrary information, keyed by name

initial_value: Any

Initial value

long_description: [str](#)²⁰⁰ | [None](#)²⁰¹

Multiline description

max_length: [int](#)²⁰² | [None](#)²⁰³

Maximum length in bytes

¹⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁵ <https://docs.python.org/3/library/functions.html#bool>
¹⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵² <https://docs.python.org/3/library/constants.html#None>
¹⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁵ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁷ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁶¹ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁶² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁵ <https://docs.python.org/3/library/constants.html#None>
¹⁶⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁷ <https://docs.python.org/3/library/functions.html#bool>
¹⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁷¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷² <https://docs.python.org/3/library/constants.html#None>

min_length: [int](#)²⁰⁴ | [None](#)²⁰⁵

Minimum length in bytes

name: [str](#)²⁰⁶

Short name of this parameter

persistent: [bool](#)²⁰⁷

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 16) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property_qualified_name: [str](#)²⁰⁸

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)²⁰⁹ | [None](#)²¹⁰

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)²¹¹ | [None](#)²¹²

Engineering units

class `yamcs.pyMDB.FloatParameter`

Bases: [Parameter](#) (page 13), [FloatDataType](#) (page 71)

173 <https://docs.python.org/3/library/stdtypes.html#str>
174 <https://docs.python.org/3/library/functions.html#int>
175 <https://docs.python.org/3/library/constants.html#None>
176 <https://docs.python.org/3/library/functions.html#int>
177 <https://docs.python.org/3/library/constants.html#None>
178 <https://docs.python.org/3/library/stdtypes.html#str>
179 <https://docs.python.org/3/library/stdtypes.html#str>
180 <https://docs.python.org/3/library/constants.html#None>
181 <https://docs.python.org/3/library/functions.html#bool>
182 <https://docs.python.org/3/library/stdtypes.html#str>
183 <https://docs.python.org/3/library/constants.html#None>
184 <https://docs.python.org/3/library/stdtypes.html#str>
185 <https://docs.python.org/3/library/constants.html#None>
186 <https://docs.python.org/3/library/stdtypes.html#str>
187 <https://docs.python.org/3/library/stdtypes.html#str>
188 <https://docs.python.org/3/library/constants.html#None>
189 <https://docs.python.org/3/library/stdtypes.html#str>
190 <https://docs.python.org/3/library/constants.html#None>
191 <https://docs.python.org/3/library/constants.html#None>
192 <https://docs.python.org/3/library/constants.html#None>
193 <https://docs.python.org/3/library/stdtypes.html#dict>
194 <https://docs.python.org/3/library/stdtypes.html#str>
195 <https://docs.python.org/3/library/stdtypes.html#str>
196 <https://docs.python.org/3/library/constants.html#None>
197 <https://docs.python.org/3/library/stdtypes.html#dict>
198 <https://docs.python.org/3/library/stdtypes.html#str>
199 <https://docs.python.org/3/library/stdtypes.html#str>
200 <https://docs.python.org/3/library/stdtypes.html#str>
201 <https://docs.python.org/3/library/constants.html#None>
202 <https://docs.python.org/3/library/functions.html#int>
203 <https://docs.python.org/3/library/constants.html#None>
204 <https://docs.python.org/3/library/functions.html#int>
205 <https://docs.python.org/3/library/constants.html#None>
206 <https://docs.python.org/3/library/stdtypes.html#str>
207 <https://docs.python.org/3/library/functions.html#bool>
208 <https://docs.python.org/3/library/stdtypes.html#str>
209 <https://docs.python.org/3/library/stdtypes.html#str>
210 <https://docs.python.org/3/library/constants.html#None>
211 <https://docs.python.org/3/library/stdtypes.html#str>
212 <https://docs.python.org/3/library/constants.html#None>

A parameter where engineering values represent a decimal

__init__(system: [System](#) (page 7), name: [str](#)²¹³, bits: [Literal](#)[32, 64] = 32, minimum: [float](#)²¹⁴ | [None](#)²¹⁵ = None, minimum_inclusive: [bool](#)²¹⁶ = True, maximum: [float](#)²¹⁷ | [None](#)²¹⁸ = None, maximum_inclusive: [bool](#)²¹⁹ = True, aliases: [Mapping](#)[[str](#)²²⁰, [str](#)²²¹] | [None](#)²²² = None, data_source: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), initial_value: [Any](#) = None, persistent: [bool](#)²²³ = True, short_description: [str](#)²²⁴ | [None](#)²²⁵ = None, long_description: [str](#)²²⁶ | [None](#)²²⁷ = None, extra: [Mapping](#)[[str](#)²²⁸, [str](#)²²⁹] | [None](#)²³⁰ = None, units: [str](#)²³¹ | [None](#)²³² = None, encoding: [Encoding](#) (page 55) | [None](#)²³³ = None, calibrator: [Calibrator](#) (page 59) | [None](#)²³⁴ = None, alarm: [ThresholdAlarm](#) (page 61) | [None](#)²³⁵ = None, context_alarms: [Sequence](#)[[ThresholdContextAlarm](#)] | [None](#)²³⁶ = None) → [None](#)²³⁷

alarm: [ThresholdAlarm](#) (page 61) | [None](#)²³⁸

Specification for alarm monitoring

aliases: [dict](#)²³⁹[[str](#)²⁴⁰, [str](#)²⁴¹]

Alternative names, keyed by namespace

bits: [Literal](#)[32, 64]

calibrator: [Calibrator](#) (page 59) | [None](#)²⁴²

Describes how a raw value is transformed to an engineering value

context_alarms: [list](#)²⁴³[[ThresholdContextAlarm](#)]

Alarm specification when a specific context expression applies

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)²⁴⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)²⁴⁵[[str](#)²⁴⁶, [str](#)²⁴⁷]

Arbitrary information, keyed by name

initial_value: [Any](#)

Initial value

long_description: [str](#)²⁴⁸ | [None](#)²⁴⁹

Multiline description

maximum: [float](#)²⁵⁰ | [None](#)²⁵¹

Maximum valid engineering value (inclusive)

maximum_inclusive: [bool](#)²⁵²

Whether the maximum value itself is valid

minimum: [float](#)²⁵³ | [None](#)²⁵⁴

Minimum valid engineering value

minimum_inclusive: [bool](#)²⁵⁵

Whether the minimum value itself is valid

name: [str](#)²⁵⁶

Short name of this parameter

persistent: [bool](#)²⁵⁷

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 18) is set too, attr:[initial_value](#) is only used once (when there is no other value to persist).

property qualified_name: [str](#)²⁵⁸

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)²⁵⁹ | [None](#)²⁶⁰

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)²⁶¹ | [None](#)²⁶²

Engineering units

class yamcs.pyMDB.IntegerParameter

Bases: [Parameter](#) (page 13), [IntegerDataType](#) (page 72)

A parameter where engineering values represent an integer

213 <https://docs.python.org/3/library/stdtypes.html#str>
214 <https://docs.python.org/3/library/functions.html#float>
215 <https://docs.python.org/3/library/constants.html#None>
216 <https://docs.python.org/3/library/functions.html#bool>
217 <https://docs.python.org/3/library/functions.html#float>
218 <https://docs.python.org/3/library/constants.html#None>
219 <https://docs.python.org/3/library/functions.html#bool>
220 <https://docs.python.org/3/library/stdtypes.html#str>
221 <https://docs.python.org/3/library/stdtypes.html#str>
222 <https://docs.python.org/3/library/constants.html#None>
223 <https://docs.python.org/3/library/functions.html#bool>
224 <https://docs.python.org/3/library/stdtypes.html#str>
225 <https://docs.python.org/3/library/constants.html#None>
226 <https://docs.python.org/3/library/stdtypes.html#str>
227 <https://docs.python.org/3/library/constants.html#None>
228 <https://docs.python.org/3/library/stdtypes.html#str>
229 <https://docs.python.org/3/library/stdtypes.html#str>
230 <https://docs.python.org/3/library/constants.html#None>
231 <https://docs.python.org/3/library/stdtypes.html#str>
232 <https://docs.python.org/3/library/constants.html#None>
233 <https://docs.python.org/3/library/constants.html#None>
234 <https://docs.python.org/3/library/constants.html#None>
235 <https://docs.python.org/3/library/constants.html#None>
236 <https://docs.python.org/3/library/constants.html#None>
237 <https://docs.python.org/3/library/constants.html#None>
238 <https://docs.python.org/3/library/constants.html#None>
239 <https://docs.python.org/3/library/stdtypes.html#dict>
240 <https://docs.python.org/3/library/stdtypes.html#str>
241 <https://docs.python.org/3/library/stdtypes.html#str>
242 <https://docs.python.org/3/library/constants.html#None>
243 <https://docs.python.org/3/library/stdtypes.html#list>
244 <https://docs.python.org/3/library/constants.html#None>
245 <https://docs.python.org/3/library/stdtypes.html#dict>
246 <https://docs.python.org/3/library/stdtypes.html#str>
247 <https://docs.python.org/3/library/stdtypes.html#str>
248 <https://docs.python.org/3/library/stdtypes.html#str>
249 <https://docs.python.org/3/library/constants.html#None>
250 <https://docs.python.org/3/library/functions.html#float>
251 <https://docs.python.org/3/library/constants.html#None>
252 <https://docs.python.org/3/library/functions.html#bool>
253 <https://docs.python.org/3/library/functions.html#float>
254 <https://docs.python.org/3/library/constants.html#None>
255 <https://docs.python.org/3/library/functions.html#bool>
256 <https://docs.python.org/3/library/stdtypes.html#str>
257 <https://docs.python.org/3/library/functions.html#bool>
258 <https://docs.python.org/3/library/stdtypes.html#str>
259 <https://docs.python.org/3/library/stdtypes.html#str>
260 <https://docs.python.org/3/library/constants.html#None>
261 <https://docs.python.org/3/library/stdtypes.html#str>
262 <https://docs.python.org/3/library/constants.html#None>

__init__(system: [System](#) (page 7), name: [str](#)²⁶³, signed: [bool](#)²⁶⁴ = True, bits: [int](#)²⁶⁵ = 32, minimum: [int](#)²⁶⁶ | [None](#)²⁶⁷ = None, maximum: [int](#)²⁶⁸ | [None](#)²⁶⁹ = None, aliases: Mapping[[str](#)²⁷⁰, [str](#)²⁷¹] | [None](#)²⁷² = None, data_source: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), initial_value: Any = None, persistent: [bool](#)²⁷³ = True, short_description: [str](#)²⁷⁴ | [None](#)²⁷⁵ = None, long_description: [str](#)²⁷⁶ | [None](#)²⁷⁷ = None, extra: Mapping[[str](#)²⁷⁸, [str](#)²⁷⁹] | [None](#)²⁸⁰ = None, units: [str](#)²⁸¹ | [None](#)²⁸² = None, encoding: [Encoding](#) (page 55) | [None](#)²⁸³ = None, calibrator: [Calibrator](#) (page 59) | [None](#)²⁸⁴ = None, alarm: [ThresholdAlarm](#) (page 61) | [None](#)²⁸⁵ = None, context_alarms: Sequence[[ThresholdContextAlarm](#)] | [None](#)²⁸⁶ = None) → [None](#)²⁸⁷

alarm: [ThresholdAlarm](#) (page 61) | [None](#)²⁸⁸

Specification for alarm monitoring

aliases: [dict](#)²⁸⁹[[str](#)²⁹⁰, [str](#)²⁹¹]

Alternative names, keyed by namespace

bits: [int](#)²⁹²

calibrator: [Calibrator](#) (page 59) | [None](#)²⁹³

Describes how a raw value is transformed to an engineering value

context_alarms: [list](#)²⁹⁴[[ThresholdContextAlarm](#)]

Alarm specification when a specific context expression applies

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)²⁹⁵

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)²⁹⁶[[str](#)²⁹⁷, [str](#)²⁹⁸]

Arbitrary information, keyed by name

initial_value: Any

Initial value

long_description: [str](#)²⁹⁹ | [None](#)³⁰⁰

Multiline description

maximum: [int](#)³⁰¹ | [None](#)³⁰²

Maximum valid engineering value (inclusive)

minimum: [int](#)³⁰³ | [None](#)³⁰⁴

Minimum valid engineering value (inclusive)

name: [str](#)³⁰⁵

Short name of this parameter

persistent: [bool](#)³⁰⁶

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 20) is set too, attr:[initial_value](#) is only used once (when there is no other value to persist).

property_qualified_name: [str](#)³⁰⁷

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)³⁰⁸ | [None](#)³⁰⁹

Online description

signed: [bool](#)³¹⁰

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)³¹¹ | [None](#)³¹²

Engineering units

class `yamcs.pyMDB.StringParameter`

Bases: [Parameter](#) (page 13), [StringDataType](#) (page 73)

A parameter where engineering values represent a character string

__init__(*system*: [System](#) (page 7), *name*: [str](#)³¹³, *min_length*: [int](#)³¹⁴ | [None](#)³¹⁵ = [None](#), *max_length*: [int](#)³¹⁶ | [None](#)³¹⁷ = [None](#), *aliases*: [Mapping](#)[[str](#)³¹⁸, [str](#)³¹⁹] | [None](#)³²⁰ = [None](#), *data_source*: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), *initial_value*: [Any](#) = [None](#), *persistent*: [bool](#)³²¹ = [True](#), *short_description*: [str](#)³²² | [None](#)³²³ = [None](#), *long_description*: [str](#)³²⁴ | [None](#)³²⁵ = [None](#), *extra*: [Mapping](#)[[str](#)³²⁶, [str](#)³²⁷] | [None](#)³²⁸ = [None](#), *units*: [str](#)³²⁹ | [None](#)³³⁰ = [None](#), *encoding*: [Encoding](#) (page 55) | [None](#)³³¹ = [None](#)) → [None](#)³³²

263 <https://docs.python.org/3/library/stdtypes.html#str>
264 <https://docs.python.org/3/library/functions.html#bool>
265 <https://docs.python.org/3/library/functions.html#int>
266 <https://docs.python.org/3/library/functions.html#int>
267 <https://docs.python.org/3/library/constants.html#None>
268 <https://docs.python.org/3/library/functions.html#int>
269 <https://docs.python.org/3/library/constants.html#None>
270 <https://docs.python.org/3/library/stdtypes.html#str>
271 <https://docs.python.org/3/library/stdtypes.html#str>
272 <https://docs.python.org/3/library/constants.html#None>
273 <https://docs.python.org/3/library/functions.html#bool>
274 <https://docs.python.org/3/library/stdtypes.html#str>
275 <https://docs.python.org/3/library/constants.html#None>
276 <https://docs.python.org/3/library/stdtypes.html#str>
277 <https://docs.python.org/3/library/constants.html#None>
278 <https://docs.python.org/3/library/stdtypes.html#str>
279 <https://docs.python.org/3/library/stdtypes.html#str>
280 <https://docs.python.org/3/library/constants.html#None>
281 <https://docs.python.org/3/library/stdtypes.html#str>
282 <https://docs.python.org/3/library/constants.html#None>
283 <https://docs.python.org/3/library/constants.html#None>
284 <https://docs.python.org/3/library/constants.html#None>
285 <https://docs.python.org/3/library/constants.html#None>
286 <https://docs.python.org/3/library/constants.html#None>
287 <https://docs.python.org/3/library/constants.html#None>
288 <https://docs.python.org/3/library/constants.html#None>
289 <https://docs.python.org/3/library/stdtypes.html#dict>
290 <https://docs.python.org/3/library/stdtypes.html#str>
291 <https://docs.python.org/3/library/stdtypes.html#str>
292 <https://docs.python.org/3/library/functions.html#int>
293 <https://docs.python.org/3/library/constants.html#None>
294 <https://docs.python.org/3/library/stdtypes.html#list>
295 <https://docs.python.org/3/library/constants.html#None>
296 <https://docs.python.org/3/library/stdtypes.html#dict>
297 <https://docs.python.org/3/library/stdtypes.html#str>
298 <https://docs.python.org/3/library/stdtypes.html#str>
299 <https://docs.python.org/3/library/stdtypes.html#str>
300 <https://docs.python.org/3/library/constants.html#None>
301 <https://docs.python.org/3/library/functions.html#int>
302 <https://docs.python.org/3/library/constants.html#None>
303 <https://docs.python.org/3/library/functions.html#int>
304 <https://docs.python.org/3/library/constants.html#None>
305 <https://docs.python.org/3/library/stdtypes.html#str>
306 <https://docs.python.org/3/library/functions.html#bool>
307 <https://docs.python.org/3/library/stdtypes.html#str>
308 <https://docs.python.org/3/library/stdtypes.html#str>
309 <https://docs.python.org/3/library/constants.html#None>
310 <https://docs.python.org/3/library/functions.html#bool>
311 <https://docs.python.org/3/library/stdtypes.html#str>
312 <https://docs.python.org/3/library/constants.html#None>

aliases: `dict`³³³[`str`³³⁴, `str`³³⁵]

Alternative names, keyed by namespace

data_source: `DataSource` (page 12)

The nature of the source entity for which this parameter receives a value

encoding: `Encoding` (page 55) | `None`³³⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: `dict`³³⁷[`str`³³⁸, `str`³³⁹]

Arbitrary information, keyed by name

initial_value: `Any`

Initial value

long_description: `str`³⁴⁰ | `None`³⁴¹

Multiline description

max_length: `int`³⁴² | `None`³⁴³

Maximum length in characters

min_length: `int`³⁴⁴ | `None`³⁴⁵

Minimum length in characters

name: `str`³⁴⁶

Short name of this parameter

persistent: `bool`³⁴⁷

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If `initial_value` (page 22) is set too, attr:`initial_value` is only used once (when there is no other value to persist).

property_qualified_name: `str`³⁴⁸

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: `str`³⁴⁹ | `None`³⁵⁰

Online description

system: `System` (page 7)

System this parameter belongs to

units: `str`³⁵¹ | `None`³⁵²

Engineering units

3.2.4 Enumerated parameters

Enumerated parameters can only represent discrete values. Booleans are a special kind of enumerated parameter that only knows two states.

class `yamcs.pyMDB.BooleanParameter`

Bases: [Parameter](#) (page 13), [BooleanDataType](#) (page 69)

A parameter where engineering values represent a boolean enumeration

```
__init__(system: System (page 7), name: str353, zero_string_value: str354 = 'False',  
one_string_value: str355 = 'True', aliases: Mapping[str356, str357] | None358 = None,  
data_source: DataSource (page 12) = DataSource.TELEMETERED, initial_value: Any =  
None, persistent: bool359 = True, short_description: str360 | None361 = None,  
long_description: str362 | None363 = None, extra: Mapping[str364, str365] | None366 = None,  
units: str367 | None368 = None, encoding: Encoding (page 55) | None369 = None) →  
None370
```

aliases: [dict](#)³⁷¹[[str](#)³⁷², [str](#)³⁷³]

Alternative names, keyed by namespace

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)³⁷⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

313 <https://docs.python.org/3/library/stdtypes.html#str>
314 <https://docs.python.org/3/library/functions.html#int>
315 <https://docs.python.org/3/library/constants.html#None>
316 <https://docs.python.org/3/library/functions.html#int>
317 <https://docs.python.org/3/library/constants.html#None>
318 <https://docs.python.org/3/library/stdtypes.html#str>
319 <https://docs.python.org/3/library/stdtypes.html#str>
320 <https://docs.python.org/3/library/constants.html#None>
321 <https://docs.python.org/3/library/functions.html#bool>
322 <https://docs.python.org/3/library/stdtypes.html#str>
323 <https://docs.python.org/3/library/constants.html#None>
324 <https://docs.python.org/3/library/stdtypes.html#str>
325 <https://docs.python.org/3/library/constants.html#None>
326 <https://docs.python.org/3/library/stdtypes.html#str>
327 <https://docs.python.org/3/library/stdtypes.html#str>
328 <https://docs.python.org/3/library/constants.html#None>
329 <https://docs.python.org/3/library/stdtypes.html#str>
330 <https://docs.python.org/3/library/constants.html#None>
331 <https://docs.python.org/3/library/constants.html#None>
332 <https://docs.python.org/3/library/constants.html#None>
333 <https://docs.python.org/3/library/stdtypes.html#dict>
334 <https://docs.python.org/3/library/stdtypes.html#str>
335 <https://docs.python.org/3/library/stdtypes.html#str>
336 <https://docs.python.org/3/library/constants.html#None>
337 <https://docs.python.org/3/library/stdtypes.html#dict>
338 <https://docs.python.org/3/library/stdtypes.html#str>
339 <https://docs.python.org/3/library/stdtypes.html#str>
340 <https://docs.python.org/3/library/stdtypes.html#str>
341 <https://docs.python.org/3/library/constants.html#None>
342 <https://docs.python.org/3/library/functions.html#int>
343 <https://docs.python.org/3/library/constants.html#None>
344 <https://docs.python.org/3/library/functions.html#int>
345 <https://docs.python.org/3/library/constants.html#None>
346 <https://docs.python.org/3/library/stdtypes.html#str>
347 <https://docs.python.org/3/library/functions.html#bool>
348 <https://docs.python.org/3/library/stdtypes.html#str>
349 <https://docs.python.org/3/library/stdtypes.html#str>
350 <https://docs.python.org/3/library/constants.html#None>
351 <https://docs.python.org/3/library/stdtypes.html#str>
352 <https://docs.python.org/3/library/constants.html#None>

extra: [dict](#)³⁷⁵[[str](#)³⁷⁶, [str](#)³⁷⁷]

Arbitrary information, keyed by name

initial_value: [Any](#)

Initial value

long_description: [str](#)³⁷⁸ | [None](#)³⁷⁹

Multiline description

name: [str](#)³⁸⁰

Short name of this parameter

one_string_value: [str](#)³⁸¹

persistent: [bool](#)³⁸²

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 24) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property_qualified_name: [str](#)³⁸³

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)³⁸⁴ | [None](#)³⁸⁵

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)³⁸⁶ | [None](#)³⁸⁷

Engineering units

zero_string_value: [str](#)³⁸⁸

class yamcs.pyddb.EnumeratedParameter

Bases: [Parameter](#) (page 13), [EnumeratedDataType](#) (page 70)

A parameter where engineering values represent states in an enumeration

__init__(*system*: [System](#) (page 7), *name*: [str](#)³⁸⁹, *choices*: [Choices](#), *alarm*: [EnumerationAlarm](#) (page 61) | [None](#)³⁹⁰ = None, *context_alarms*: [Sequence](#)[[EnumerationContextAlarm](#)] | [None](#)³⁹¹ = None, *aliases*: [Mapping](#)[[str](#)³⁹², [str](#)³⁹³] | [None](#)³⁹⁴ = None, *data_source*: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), *initial_value*: [Any](#) = None, *persistent*: [bool](#)³⁹⁵ = True, *short_description*: [str](#)³⁹⁶ | [None](#)³⁹⁷ = None, *long_description*: [str](#)³⁹⁸ | [None](#)³⁹⁹ = None, *extra*: [Mapping](#)[[str](#)⁴⁰⁰, [str](#)⁴⁰¹] | [None](#)⁴⁰² = None, *units*: [str](#)⁴⁰³ | [None](#)⁴⁰⁴ = None, *encoding*: [Encoding](#) (page 55) | [None](#)⁴⁰⁵ = None) → [None](#)⁴⁰⁶

alarm: [EnumerationAlarm](#) (page 61) | [None](#)⁴⁰⁷

Specification for alarm monitoring

aliases: [dict](#)⁴⁰⁸[[str](#)⁴⁰⁹, [str](#)⁴¹⁰]

Alternative names, keyed by namespace

choices: [Choices](#)

context_alarms: [list](#)⁴¹¹[[EnumerationContextAlarm](#)]

Alarm specification when a specific context expression applies

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)⁴¹²

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

353 <https://docs.python.org/3/library/stdtypes.html#str>
354 <https://docs.python.org/3/library/stdtypes.html#str>
355 <https://docs.python.org/3/library/stdtypes.html#str>
356 <https://docs.python.org/3/library/stdtypes.html#str>
357 <https://docs.python.org/3/library/stdtypes.html#str>
358 <https://docs.python.org/3/library/constants.html#None>
359 <https://docs.python.org/3/library/functions.html#bool>
360 <https://docs.python.org/3/library/stdtypes.html#str>
361 <https://docs.python.org/3/library/constants.html#None>
362 <https://docs.python.org/3/library/stdtypes.html#str>
363 <https://docs.python.org/3/library/constants.html#None>
364 <https://docs.python.org/3/library/stdtypes.html#str>
365 <https://docs.python.org/3/library/stdtypes.html#str>
366 <https://docs.python.org/3/library/constants.html#None>
367 <https://docs.python.org/3/library/stdtypes.html#str>
368 <https://docs.python.org/3/library/constants.html#None>
369 <https://docs.python.org/3/library/constants.html#None>
370 <https://docs.python.org/3/library/constants.html#None>
371 <https://docs.python.org/3/library/stdtypes.html#dict>
372 <https://docs.python.org/3/library/stdtypes.html#str>
373 <https://docs.python.org/3/library/stdtypes.html#str>
374 <https://docs.python.org/3/library/constants.html#None>
375 <https://docs.python.org/3/library/stdtypes.html#dict>
376 <https://docs.python.org/3/library/stdtypes.html#str>
377 <https://docs.python.org/3/library/stdtypes.html#str>
378 <https://docs.python.org/3/library/stdtypes.html#str>
379 <https://docs.python.org/3/library/constants.html#None>
380 <https://docs.python.org/3/library/stdtypes.html#str>
381 <https://docs.python.org/3/library/stdtypes.html#str>
382 <https://docs.python.org/3/library/functions.html#bool>
383 <https://docs.python.org/3/library/stdtypes.html#str>
384 <https://docs.python.org/3/library/stdtypes.html#str>
385 <https://docs.python.org/3/library/constants.html#None>
386 <https://docs.python.org/3/library/stdtypes.html#str>
387 <https://docs.python.org/3/library/constants.html#None>
388 <https://docs.python.org/3/library/stdtypes.html#str>

extra: [dict](#)⁴¹³[[str](#)⁴¹⁴, [str](#)⁴¹⁵]

Arbitrary information, keyed by name

initial_value: [Any](#)

Initial value

label_for(*value*: [int](#)⁴¹⁶)

long_description: [str](#)⁴¹⁷ | [None](#)⁴¹⁸

Multiline description

name: [str](#)⁴¹⁹

Short name of this parameter

persistent: [bool](#)⁴²⁰

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 26) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property_qualified_name: [str](#)⁴²¹

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)⁴²² | [None](#)⁴²³

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)⁴²⁴ | [None](#)⁴²⁵

Engineering units

3.2.5 Complex parameters

class `yamcs.pyMDB.AggregateParameter`

Bases: [Parameter](#) (page 13), [AggregateDataType](#) (page 66)

A parameter where engineering values represent a structure of other data types, referred to as *members*

__init__(*system*: [System](#) (page 7), *name*: [str](#)⁴²⁶, *members*: [Sequence](#)[[Member](#) (page 74)], *aliases*: [Mapping](#)[[str](#)⁴²⁷, [str](#)⁴²⁸] | [None](#)⁴²⁹ = [None](#), *data_source*: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), *initial_value*: [Any](#) = [None](#), *persistent*: [bool](#)⁴³⁰ = [True](#), *short_description*: [str](#)⁴³¹ | [None](#)⁴³² = [None](#), *long_description*: [str](#)⁴³³ | [None](#)⁴³⁴ = [None](#), *extra*: [Mapping](#)[[str](#)⁴³⁵, [str](#)⁴³⁶] | [None](#)⁴³⁷ = [None](#), *encoding*: [Encoding](#) (page 55) | [None](#)⁴³⁸ = [None](#)) → [None](#)⁴³⁹

aliases: [dict](#)⁴⁴⁰[[str](#)⁴⁴¹, [str](#)⁴⁴²]

Alternative names, keyed by namespace

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

encoding: [Encoding](#) (page 55) | [None](#)⁴⁴³

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁴⁴⁴[[str](#)⁴⁴⁵, [str](#)⁴⁴⁶]

Arbitrary information, keyed by name

find_member(*name*: [str](#)⁴⁴⁷) → [Member](#) (page 74)

389 <https://docs.python.org/3/library/stdtypes.html#str>
390 <https://docs.python.org/3/library/constants.html#None>
391 <https://docs.python.org/3/library/constants.html#None>
392 <https://docs.python.org/3/library/stdtypes.html#str>
393 <https://docs.python.org/3/library/stdtypes.html#str>
394 <https://docs.python.org/3/library/constants.html#None>
395 <https://docs.python.org/3/library/functions.html#bool>
396 <https://docs.python.org/3/library/stdtypes.html#str>
397 <https://docs.python.org/3/library/constants.html#None>
398 <https://docs.python.org/3/library/stdtypes.html#str>
399 <https://docs.python.org/3/library/constants.html#None>
400 <https://docs.python.org/3/library/stdtypes.html#str>
401 <https://docs.python.org/3/library/stdtypes.html#str>
402 <https://docs.python.org/3/library/constants.html#None>
403 <https://docs.python.org/3/library/stdtypes.html#str>
404 <https://docs.python.org/3/library/constants.html#None>
405 <https://docs.python.org/3/library/constants.html#None>
406 <https://docs.python.org/3/library/constants.html#None>
407 <https://docs.python.org/3/library/constants.html#None>
408 <https://docs.python.org/3/library/stdtypes.html#dict>
409 <https://docs.python.org/3/library/stdtypes.html#str>
410 <https://docs.python.org/3/library/stdtypes.html#str>
411 <https://docs.python.org/3/library/stdtypes.html#list>
412 <https://docs.python.org/3/library/constants.html#None>
413 <https://docs.python.org/3/library/stdtypes.html#dict>
414 <https://docs.python.org/3/library/stdtypes.html#str>
415 <https://docs.python.org/3/library/stdtypes.html#str>
416 <https://docs.python.org/3/library/functions.html#int>
417 <https://docs.python.org/3/library/stdtypes.html#str>
418 <https://docs.python.org/3/library/constants.html#None>
419 <https://docs.python.org/3/library/stdtypes.html#str>
420 <https://docs.python.org/3/library/functions.html#bool>
421 <https://docs.python.org/3/library/stdtypes.html#str>
422 <https://docs.python.org/3/library/stdtypes.html#str>
423 <https://docs.python.org/3/library/constants.html#None>
424 <https://docs.python.org/3/library/stdtypes.html#str>
425 <https://docs.python.org/3/library/constants.html#None>

initial_value: Any

Initial value

long_description: [str](#)⁴⁴⁸ | [None](#)⁴⁴⁹

Multiline description

members: [list](#)⁴⁵⁰ [[Member](#) (page 74)]

name: [str](#)⁴⁵¹

Short name of this parameter

persistent: [bool](#)⁴⁵²

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 27) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property_qualified_name: [str](#)⁴⁵³

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)⁴⁵⁴ | [None](#)⁴⁵⁵

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)⁴⁵⁶ | [None](#)⁴⁵⁷

Engineering units

class `yamcs.pyMDB.ArrayParameter`

Bases: [Parameter](#) (page 13), [ArrayDataType](#) (page 67)

A parameter where engineering values represent an array where each element is of another data type

⁴²⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁴²⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴²⁹ <https://docs.python.org/3/library/constants.html#None>
⁴³⁰ <https://docs.python.org/3/library/functions.html#bool>
⁴³¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴³² <https://docs.python.org/3/library/constants.html#None>
⁴³³ <https://docs.python.org/3/library/stdtypes.html#str>
⁴³⁴ <https://docs.python.org/3/library/constants.html#None>
⁴³⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁴³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴³⁷ <https://docs.python.org/3/library/constants.html#None>
⁴³⁸ <https://docs.python.org/3/library/constants.html#None>
⁴³⁹ <https://docs.python.org/3/library/constants.html#None>
⁴⁴⁰ <https://docs.python.org/3/library/stdtypes.html#dict>
⁴⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴² <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴³ <https://docs.python.org/3/library/constants.html#None>
⁴⁴⁴ <https://docs.python.org/3/library/stdtypes.html#dict>
⁴⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁴⁹ <https://docs.python.org/3/library/constants.html#None>
⁴⁵⁰ <https://docs.python.org/3/library/stdtypes.html#list>
⁴⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁵² <https://docs.python.org/3/library/functions.html#bool>
⁴⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁵⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁵⁵ <https://docs.python.org/3/library/constants.html#None>
⁴⁵⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁵⁷ <https://docs.python.org/3/library/constants.html#None>

__init__(*system*: [System](#) (page 7), *name*: [str](#)⁴⁵⁸, *data_type*: [DataType](#) (page 64), *length*: [int](#)⁴⁵⁹ | [DynamicInteger](#) (page 64), *aliases*: [Mapping](#)[[str](#)⁴⁶⁰, [str](#)⁴⁶¹] | [None](#)⁴⁶² = None, *data_source*: [DataSource](#) (page 12) = [DataSource.TELEMETERED](#), *initial_value*: Any = None, *persistent*: [bool](#)⁴⁶³ = True, *short_description*: [str](#)⁴⁶⁴ | [None](#)⁴⁶⁵ = None, *long_description*: [str](#)⁴⁶⁶ | [None](#)⁴⁶⁷ = None, *extra*: [Mapping](#)[[str](#)⁴⁶⁸, [str](#)⁴⁶⁹] | [None](#)⁴⁷⁰ = None, *encoding*: [Encoding](#) (page 55) | [None](#)⁴⁷¹ = None) → [None](#)⁴⁷²

aliases: [dict](#)⁴⁷³[[str](#)⁴⁷⁴, [str](#)⁴⁷⁵]

Alternative names, keyed by namespace

data_source: [DataSource](#) (page 12)

The nature of the source entity for which this parameter receives a value

data_type: [DataType](#) (page 64)

encoding: [Encoding](#) (page 55) | [None](#)⁴⁷⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁴⁷⁷[[str](#)⁴⁷⁸, [str](#)⁴⁷⁹]

Arbitrary information, keyed by name

initial_value: Any

Initial value

length: [int](#)⁴⁸⁰ | [DynamicInteger](#) (page 64)

long_description: [str](#)⁴⁸¹ | [None](#)⁴⁸²

Multiline description

name: [str](#)⁴⁸³

Short name of this parameter

persistent: [bool](#)⁴⁸⁴

If true, the parameter's last value is restored in case of a restart of the Yamcs system.

If [initial_value](#) (page 29) is set too, attr:*initial_value* is only used once (when there is no other value to persist).

property_qualified_name: [str](#)⁴⁸⁵

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)⁴⁸⁶ | [None](#)⁴⁸⁷

Online description

system: [System](#) (page 7)

System this parameter belongs to

units: [str](#)⁴⁸⁸ | [None](#)⁴⁸⁹

Engineering units

3.3 Containers

3.3.1 Container

`class yamcs.pyldb.Container`

Bases: `object`⁴⁹⁰

A collection of entries where each entry may be another container or a parameter.

`__init__`(*system*: `System` (page 7), *name*: `str`⁴⁹¹, *entries*: `Sequence`[`ParameterEntry` (page 32) | `ContainerEntry` (page 33)] | `None`⁴⁹² = `None`, *, *base*: `Container` (page 30) | `str`⁴⁹³ | `None`⁴⁹⁴ = `None`, *abstract*: `bool`⁴⁹⁵ = `False`, *condition*: `Expression` | `None`⁴⁹⁶ = `None`, *aliases*: `Mapping`[`str`⁴⁹⁷, `str`⁴⁹⁸] | `None`⁴⁹⁹ = `None`, *short_description*: `str`⁵⁰⁰ | `None`⁵⁰¹ = `None`, *long_description*: `str`⁵⁰² | `None`⁵⁰³ = `None`, *extra*: `Mapping`[`str`⁵⁰⁴, `str`⁵⁰⁵] | `None`⁵⁰⁶ = `None`, *bits*: `int`⁵⁰⁷ | `None`⁵⁰⁸ = `None`, *rate*: `float`⁵⁰⁹ | `None`⁵¹⁰ = `None`, *hint_partition*: `bool`⁵¹¹ = `False`)

aliases: `dict`⁵¹²[`str`⁵¹³, `str`⁵¹⁴]

Alternative names, keyed by namespace

bits: `int`⁵¹⁵ | `None`⁵¹⁶

Explicit fixed size in bits. Usually unnecessary, because Yamcs can derive a lot from the entries.

If provided, Yamcs can use this information to speed up parameter extraction, especially when this container is used as an entry into another container.

If this container extends base container(s), their size should be included.

condition: `Expression` | `None`⁵¹⁷

Restriction criteria for this container.

extra: `dict`⁵¹⁸[`str`⁵¹⁹, `str`⁵²⁰]

Arbitrary information, keyed by name

⁴⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁵⁹ <https://docs.python.org/3/library/functions.html#int>
⁴⁶⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁶¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁶² <https://docs.python.org/3/library/constants.html#None>
⁴⁶³ <https://docs.python.org/3/library/functions.html#bool>
⁴⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁶⁵ <https://docs.python.org/3/library/constants.html#None>
⁴⁶⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁶⁷ <https://docs.python.org/3/library/constants.html#None>
⁴⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁷⁰ <https://docs.python.org/3/library/constants.html#None>
⁴⁷¹ <https://docs.python.org/3/library/constants.html#None>
⁴⁷² <https://docs.python.org/3/library/constants.html#None>
⁴⁷³ <https://docs.python.org/3/library/stdtypes.html#dict>
⁴⁷⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁷⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁷⁶ <https://docs.python.org/3/library/constants.html#None>
⁴⁷⁷ <https://docs.python.org/3/library/stdtypes.html#dict>
⁴⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁷⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸⁰ <https://docs.python.org/3/library/functions.html#int>
⁴⁸¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸² <https://docs.python.org/3/library/constants.html#None>
⁴⁸³ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸⁴ <https://docs.python.org/3/library/functions.html#bool>
⁴⁸⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸⁷ <https://docs.python.org/3/library/constants.html#None>
⁴⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁴⁸⁹ <https://docs.python.org/3/library/constants.html#None>

fit_entries()

Automatically set a fixed size to this container based on the known entries.

hint_partition: [bool](#)⁵²¹

Hint that this container's name should be used for partitioning when stored to Yamcs.

long_description: [str](#)⁵²² | [None](#)⁵²³

Multiline description

name: [str](#)⁵²⁴

Short name of this parameter

property_qualified_name: [str](#)⁵²⁵

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

rate: [float](#)⁵²⁶ | [None](#)⁵²⁷

Expected rate in seconds.

For example, a rate of 2 means: "one update every 2 seconds" (not "2 updates every second").

This is used by Yamcs to determine parameter expiration. A parameter's realtime value is considered expired when $1.9 * \text{rate}$ has passed without a new update (where 1.9 is a configurable tolerance multiplier).

If None, the contained parameters are not checked for expiration.

short_description: [str](#)⁵²⁸ | [None](#)⁵²⁹

Online description

system: [System](#) (page 7)

System this container belongs to

3.3.2 ParameterEntry

`class yamcs.pyddb.ParameterEntry`

Bases: `object`⁵³⁰

`__init__`(*parameter*: `Parameter` (page 13), *bitpos*: `int`⁵³¹ | `None`⁵³² = `None`, *, *offset*: `int`⁵³³ = 0, *short_description*: `str`⁵³⁴ | `None`⁵³⁵ = `None`, *condition*: `Expression` | `None`⁵³⁶ = `None`) → `None`⁵³⁷

bitpos: `int`⁵³⁸ | `None`⁵³⁹

Absolute position within the container, in bits.

If unspecified, this entry is positioned relative to the preceding entry.

condition: `Expression` | `None`⁵⁴⁰

If set, this entry is only present when the condition is met

offset: `int`⁵⁴¹

Distance in bits to the preceding entry.

While not expected, if both *bitpos* (page 32) and *offset* (page 32) are specified, the two are added together for establishing the real absolute bit position.

short_description: `str`⁵⁴² | `None`⁵⁴³

Online description

490 <https://docs.python.org/3/library/functions.html#object>
491 <https://docs.python.org/3/library/stdtypes.html#str>
492 <https://docs.python.org/3/library/constants.html#None>
493 <https://docs.python.org/3/library/stdtypes.html#str>
494 <https://docs.python.org/3/library/constants.html#None>
495 <https://docs.python.org/3/library/functions.html#bool>
496 <https://docs.python.org/3/library/constants.html#None>
497 <https://docs.python.org/3/library/stdtypes.html#str>
498 <https://docs.python.org/3/library/stdtypes.html#str>
499 <https://docs.python.org/3/library/constants.html#None>
500 <https://docs.python.org/3/library/stdtypes.html#str>
501 <https://docs.python.org/3/library/constants.html#None>
502 <https://docs.python.org/3/library/stdtypes.html#str>
503 <https://docs.python.org/3/library/constants.html#None>
504 <https://docs.python.org/3/library/stdtypes.html#str>
505 <https://docs.python.org/3/library/stdtypes.html#str>
506 <https://docs.python.org/3/library/constants.html#None>
507 <https://docs.python.org/3/library/functions.html#int>
508 <https://docs.python.org/3/library/constants.html#None>
509 <https://docs.python.org/3/library/functions.html#float>
510 <https://docs.python.org/3/library/constants.html#None>
511 <https://docs.python.org/3/library/functions.html#bool>
512 <https://docs.python.org/3/library/stdtypes.html#dict>
513 <https://docs.python.org/3/library/stdtypes.html#str>
514 <https://docs.python.org/3/library/stdtypes.html#str>
515 <https://docs.python.org/3/library/functions.html#int>
516 <https://docs.python.org/3/library/constants.html#None>
517 <https://docs.python.org/3/library/constants.html#None>
518 <https://docs.python.org/3/library/stdtypes.html#dict>
519 <https://docs.python.org/3/library/stdtypes.html#str>
520 <https://docs.python.org/3/library/stdtypes.html#str>
521 <https://docs.python.org/3/library/functions.html#bool>
522 <https://docs.python.org/3/library/stdtypes.html#str>
523 <https://docs.python.org/3/library/constants.html#None>
524 <https://docs.python.org/3/library/stdtypes.html#str>
525 <https://docs.python.org/3/library/stdtypes.html#str>
526 <https://docs.python.org/3/library/functions.html#float>
527 <https://docs.python.org/3/library/constants.html#None>
528 <https://docs.python.org/3/library/stdtypes.html#str>
529 <https://docs.python.org/3/library/constants.html#None>

3.3.3 ContainerEntry

`class yamcs.pyddb.ContainerEntry`

Bases: `object`⁵⁴⁴

`__init__`(*container*: `Container` (page 30), *short_description*: `str`⁵⁴⁵ | `None`⁵⁴⁶ = `None`, *bitpos*: `int`⁵⁴⁷ | `None`⁵⁴⁸ = `None`, *offset*: `int`⁵⁴⁹ = 0, *condition*: `Expression` | `None`⁵⁵⁰ = `None`) → `None`⁵⁵¹

bitpos: `int`⁵⁵² | `None`⁵⁵³

Absolute position within the container, in bits.

If unspecified, this entry is positioned relative to the preceding entry.

condition: `Expression` | `None`⁵⁵⁴

If set, this entry is only present when the condition is met

offset: `int`⁵⁵⁵

Distance in bits to the preceding entry.

While not expected, if both `bitpos` (page 33) and `offset` (page 33) are specified, the two are added together for establishing the real absolute bit position.

short_description: `str`⁵⁵⁶ | `None`⁵⁵⁷

Online description

3.4 Algorithms

3.4.1 Algorithm

`class yamcs.pyddb.Algorithm`

Bases: `object`⁵⁵⁸

530 <https://docs.python.org/3/library/functions.html#object>
531 <https://docs.python.org/3/library/functions.html#int>
532 <https://docs.python.org/3/library/constants.html#None>
533 <https://docs.python.org/3/library/functions.html#int>
534 <https://docs.python.org/3/library/stdtypes.html#str>
535 <https://docs.python.org/3/library/constants.html#None>
536 <https://docs.python.org/3/library/constants.html#None>
537 <https://docs.python.org/3/library/constants.html#None>
538 <https://docs.python.org/3/library/functions.html#int>
539 <https://docs.python.org/3/library/constants.html#None>
540 <https://docs.python.org/3/library/constants.html#None>
541 <https://docs.python.org/3/library/functions.html#int>
542 <https://docs.python.org/3/library/stdtypes.html#str>
543 <https://docs.python.org/3/library/constants.html#None>
544 <https://docs.python.org/3/library/functions.html#object>
545 <https://docs.python.org/3/library/stdtypes.html#str>
546 <https://docs.python.org/3/library/constants.html#None>
547 <https://docs.python.org/3/library/functions.html#int>
548 <https://docs.python.org/3/library/constants.html#None>
549 <https://docs.python.org/3/library/functions.html#int>
550 <https://docs.python.org/3/library/constants.html#None>
551 <https://docs.python.org/3/library/constants.html#None>
552 <https://docs.python.org/3/library/functions.html#int>
553 <https://docs.python.org/3/library/constants.html#None>
554 <https://docs.python.org/3/library/constants.html#None>
555 <https://docs.python.org/3/library/functions.html#int>
556 <https://docs.python.org/3/library/stdtypes.html#str>
557 <https://docs.python.org/3/library/constants.html#None>

__init__(system: [System](#) (page 7), name: [str](#)⁵⁵⁹, *, aliases: Mapping[[str](#)⁵⁶⁰, [str](#)⁵⁶¹] | [None](#)⁵⁶² = None, short_description: [str](#)⁵⁶³ | [None](#)⁵⁶⁴ = None, long_description: [str](#)⁵⁶⁵ | [None](#)⁵⁶⁶ = None, extra: Mapping[[str](#)⁵⁶⁷, [str](#)⁵⁶⁸] | [None](#)⁵⁶⁹ = None, language: [str](#)⁵⁷⁰, text: [str](#)⁵⁷¹, inputs: Sequence[[InputParameter](#) (page 35)] | [None](#)⁵⁷² = None, outputs: Sequence[[OutputParameter](#) (page 35)] | [None](#)⁵⁷³ = None, triggers: Sequence[[Trigger](#) (page 36)] | [None](#)⁵⁷⁴ = None)

aliases: [dict](#)⁵⁷⁵[[str](#)⁵⁷⁶, [str](#)⁵⁷⁷]
Alternative names, keyed by namespace

extra: [dict](#)⁵⁷⁸[[str](#)⁵⁷⁹, [str](#)⁵⁸⁰]
Arbitrary information, keyed by name

inputs: [list](#)⁵⁸¹[[InputParameter](#) (page 35)]
Parameter inputs available to the algorithm

language: [str](#)⁵⁸²
Algorithm language

long_description: [str](#)⁵⁸³ | [None](#)⁵⁸⁴
Multiline description

name: [str](#)⁵⁸⁵
Short name of this algorithm

outputs: [list](#)⁵⁸⁶[[OutputParameter](#) (page 35)]
Parameter outputs available to the algorithm

property_qualified_name: [str](#)⁵⁸⁷
Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)⁵⁸⁸ | [None](#)⁵⁸⁹
Online description

system: [System](#) (page 7)
System this algorithm belongs to

text: [str](#)⁵⁹⁰
Algorithm text

triggers: [list](#)⁵⁹¹[[Trigger](#) (page 36)]
Algorithm triggers

3.4.2 InputParameter

`class yamcs.pyddb.InputParameter`

Bases: `object`⁵⁹²

`__init__`(parameter: `Parameter` (page 13) | `str`⁵⁹³, *, name: `str`⁵⁹⁴ | `None`⁵⁹⁵ = None, required: `bool`⁵⁹⁶ = False, instance: `int`⁵⁹⁷ = 0)

name: `str`⁵⁹⁸ | `None`⁵⁹⁹

Variable name to be used inside the algorithm. If not specified, a name is derived from the basename of the parameter.

parameter

Reference parameter

3.4.3 OutputParameter

`class yamcs.pyddb.OutputParameter`

Bases: `object`⁶⁰⁰

`__init__`(parameter: `Parameter` (page 13) | `str`⁶⁰¹, *, name: `str`⁶⁰² | `None`⁶⁰³ = None)

558 <https://docs.python.org/3/library/functions.html#object>
559 <https://docs.python.org/3/library/stdtypes.html#str>
560 <https://docs.python.org/3/library/stdtypes.html#str>
561 <https://docs.python.org/3/library/stdtypes.html#str>
562 <https://docs.python.org/3/library/constants.html#None>
563 <https://docs.python.org/3/library/stdtypes.html#str>
564 <https://docs.python.org/3/library/constants.html#None>
565 <https://docs.python.org/3/library/stdtypes.html#str>
566 <https://docs.python.org/3/library/constants.html#None>
567 <https://docs.python.org/3/library/stdtypes.html#str>
568 <https://docs.python.org/3/library/stdtypes.html#str>
569 <https://docs.python.org/3/library/constants.html#None>
570 <https://docs.python.org/3/library/stdtypes.html#str>
571 <https://docs.python.org/3/library/stdtypes.html#str>
572 <https://docs.python.org/3/library/constants.html#None>
573 <https://docs.python.org/3/library/constants.html#None>
574 <https://docs.python.org/3/library/constants.html#None>
575 <https://docs.python.org/3/library/stdtypes.html#dict>
576 <https://docs.python.org/3/library/stdtypes.html#str>
577 <https://docs.python.org/3/library/stdtypes.html#str>
578 <https://docs.python.org/3/library/stdtypes.html#dict>
579 <https://docs.python.org/3/library/stdtypes.html#str>
580 <https://docs.python.org/3/library/stdtypes.html#str>
581 <https://docs.python.org/3/library/stdtypes.html#list>
582 <https://docs.python.org/3/library/stdtypes.html#str>
583 <https://docs.python.org/3/library/stdtypes.html#str>
584 <https://docs.python.org/3/library/constants.html#None>
585 <https://docs.python.org/3/library/stdtypes.html#str>
586 <https://docs.python.org/3/library/stdtypes.html#list>
587 <https://docs.python.org/3/library/stdtypes.html#str>
588 <https://docs.python.org/3/library/stdtypes.html#str>
589 <https://docs.python.org/3/library/constants.html#None>
590 <https://docs.python.org/3/library/stdtypes.html#str>
591 <https://docs.python.org/3/library/stdtypes.html#list>
592 <https://docs.python.org/3/library/functions.html#object>
593 <https://docs.python.org/3/library/stdtypes.html#str>
594 <https://docs.python.org/3/library/stdtypes.html#str>
595 <https://docs.python.org/3/library/constants.html#None>
596 <https://docs.python.org/3/library/functions.html#bool>
597 <https://docs.python.org/3/library/functions.html#int>
598 <https://docs.python.org/3/library/stdtypes.html#str>
599 <https://docs.python.org/3/library/constants.html#None>

name: [str](#)⁶⁰⁴ | [None](#)⁶⁰⁵

Variable name to be used inside the algorithm. If not specified, a name is derived from the basename of the parameter.

parameter

Reference parameter

3.4.4 Trigger

class `yamcs.pyldb.Trigger`

Bases: [object](#)⁶⁰⁶

3.4.5 ParameterTrigger

class `yamcs.pyldb.ParameterTrigger`

Bases: [Trigger](#) (page 36)

__init__(*parameter*: [Parameter](#) (page 13) | [str](#)⁶⁰⁷) → [None](#)⁶⁰⁸

parameter

Reference parameter

3.4.6 ContainerTrigger

class `yamcs.pyldb.ContainerTrigger`

Bases: [Trigger](#) (page 36)

__init__(*container*: [Container](#) (page 30) | [str](#)⁶⁰⁹) → [None](#)⁶¹⁰

container

Reference container

3.4.7 UnnamedAlgorithm

class `yamcs.pyldb.UnnamedAlgorithm`

Bases: [object](#)⁶¹¹

__init__(*language*: [str](#)⁶¹², *text*: [str](#)⁶¹³, *, *inputs*: [Optional](#)⁶¹⁴[[Sequence](#)⁶¹⁵[[InputParameter](#) (page 35)]] = [None](#), *extra*: [Optional](#)⁶¹⁶[[Union](#)⁶¹⁷[[Mapping](#)⁶¹⁸[[str](#)⁶¹⁹, [str](#)⁶²⁰], [AncillaryData](#) (page 62)]] = [None](#))

extra: [AncillaryData](#) (page 62)

Arbitrary information, keyed by name

⁶⁰⁰ <https://docs.python.org/3/library/functions.html#object>

⁶⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁰² <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁰³ <https://docs.python.org/3/library/constants.html#None>

⁶⁰⁴ <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁰⁵ <https://docs.python.org/3/library/constants.html#None>

⁶⁰⁶ <https://docs.python.org/3/library/functions.html#object>

⁶⁰⁷ <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁰⁸ <https://docs.python.org/3/library/constants.html#None>

⁶⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶¹⁰ <https://docs.python.org/3/library/constants.html#None>

inputs: [list](#)⁶²¹ [[InputParameter](#) (page 35)]

Parameter inputs available to the algorithm

3.4.8 UnnamedJavaAlgorithm

class `yamcs.pyMDB.UnnamedJavaAlgorithm`

Bases: [UnnamedAlgorithm](#) (page 36)

__init__(*java: str*⁶²², *, *inputs: Optional*⁶²³ [*Sequence*⁶²⁴ [*InputParameter* (page 35)]] = None, *extra: Optional*⁶²⁵ [*Union*⁶²⁶ [*Mapping*⁶²⁷ [*str*⁶²⁸, *str*⁶²⁹], *AncillaryData* (page 62)]] = None)

extra: [AncillaryData](#) (page 62)

Arbitrary information, keyed by name

inputs: [list](#)⁶³⁰ [[InputParameter](#) (page 35)]

Parameter inputs available to the algorithm

language: [str](#)⁶³¹

text: [str](#)⁶³²

3.4.9 UnnamedJavaScriptAlgorithm

class `yamcs.pyMDB.UnnamedJavaScriptAlgorithm`

Bases: [UnnamedAlgorithm](#) (page 36)

__init__(*js: str*⁶³³, *, *inputs: Optional*⁶³⁴ [*Sequence*⁶³⁵ [*InputParameter* (page 35)]] = None, *extra: Optional*⁶³⁶ [*Union*⁶³⁷ [*Mapping*⁶³⁸ [*str*⁶³⁹, *str*⁶⁴⁰], *AncillaryData* (page 62)]] = None)

extra: [AncillaryData](#) (page 62)

Arbitrary information, keyed by name

inputs: [list](#)⁶⁴¹ [[InputParameter](#) (page 35)]

Parameter inputs available to the algorithm

language: [str](#)⁶⁴²

⁶¹¹ <https://docs.python.org/3/library/functions.html#object>

⁶¹² <https://docs.python.org/3/library/stdtypes.html#str>

⁶¹³ <https://docs.python.org/3/library/stdtypes.html#str>

⁶¹⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶¹⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

⁶¹⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶¹⁷ <https://docs.python.org/3/library/typing.html#typing.Union>

⁶¹⁸ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

⁶¹⁹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶²⁰ <https://docs.python.org/3/library/stdtypes.html#str>

⁶²¹ <https://docs.python.org/3/library/stdtypes.html#list>

⁶²² <https://docs.python.org/3/library/stdtypes.html#str>

⁶²³ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶²⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

⁶²⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶²⁶ <https://docs.python.org/3/library/typing.html#typing.Union>

⁶²⁷ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

⁶²⁸ <https://docs.python.org/3/library/stdtypes.html#str>

⁶²⁹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶³⁰ <https://docs.python.org/3/library/stdtypes.html#list>

⁶³¹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶³² <https://docs.python.org/3/library/stdtypes.html#str>

text: [str](#)⁶⁴³

3.5 Commands

3.5.1 Command

class `yamcs.pymdb.Command`

Bases: [object](#)⁶⁴⁴

`__init__`(system: [System](#) (page 7), name: [str](#)⁶⁴⁵, *, aliases: Mapping[[str](#)⁶⁴⁶, [str](#)⁶⁴⁷] | [None](#)⁶⁴⁸ = [None](#), short_description: [str](#)⁶⁴⁹ | [None](#)⁶⁵⁰ = [None](#), long_description: [str](#)⁶⁵¹ | [None](#)⁶⁵² = [None](#), extra: Mapping[[str](#)⁶⁵³, [str](#)⁶⁵⁴] | [None](#)⁶⁵⁵ = [None](#), abstract: [bool](#)⁶⁵⁶ = [False](#), base: [Command](#) (page 38) | [str](#)⁶⁵⁷ | [None](#)⁶⁵⁸ = [None](#), assignments: Mapping[[str](#)⁶⁵⁹, Any] | [None](#)⁶⁶⁰ = [None](#), arguments: Sequence[[Argument](#) (page 40)] | [None](#)⁶⁶¹ = [None](#), entries: Sequence[[CommandEntry](#)] | [None](#)⁶⁶² = [None](#), level: [CommandLevel](#) (page 39) = [CommandLevel.NORMAL](#), warning_message: [str](#)⁶⁶³ | [None](#)⁶⁶⁴ = [None](#), constraint: Union[[TransmissionConstraint](#) (page 53), Sequence[[TransmissionConstraint](#) (page 53)]] | [None](#)⁶⁶⁵ = [None](#))

aliases: [dict](#)⁶⁶⁶[[str](#)⁶⁶⁷, [str](#)⁶⁶⁸]

Alternative names, keyed by namespace

constraints

Constraints to check before sending the command.

A command is sent only when all constraints are satisfied. Constraints are evaluated in order. Afterwards, also constraints from base are checked.

property entries: [list](#)⁶⁶⁹[[ArgumentEntry](#) (page 51) | [ParameterEntry](#) (page 32) | [FixedValueEntry](#) (page 52)]

The order and placement of entries in the encoded command.

If unset, the default behaviour is to have a consecutive entry for each argument that has an encoding defined, in the same order as the arguments.

extra: [dict](#)⁶⁷⁰[[str](#)⁶⁷¹, [str](#)⁶⁷²]

Arbitrary information, keyed by name

`get_argument`(name: [str](#)⁶⁷³, visit_parents=True)

Return the argument for the given name

Parameters

`visit_parents` – Search upwards in parent commands

level: [CommandLevel](#) (page 39)

The importance of this telecommand in terms of the nature and significance of its on-board effect.

long_description: [str](#)⁶⁷⁴ | [None](#)⁶⁷⁵

Multiline description

⁶³³ <https://docs.python.org/3/library/stdtypes.html#str>

⁶³⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶³⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

⁶³⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>

⁶³⁷ <https://docs.python.org/3/library/typing.html#typing.Union>

⁶³⁸ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

⁶³⁹ <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁴⁰ <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁴¹ <https://docs.python.org/3/library/stdtypes.html#list>

⁶⁴² <https://docs.python.org/3/library/stdtypes.html#str>

⁶⁴³ <https://docs.python.org/3/library/stdtypes.html#str>

name: [str](#)⁶⁷⁶

Short name of this command

property qualified_name: [str](#)⁶⁷⁷

Absolute path of this item covering the full system tree. For example, an item C in a subsystem B of a top-level system A is represented as /A/B/C

short_description: [str](#)⁶⁷⁸ | [None](#)⁶⁷⁹

Online description

system: [System](#) (page 7)

System this command belongs to

property verifiers: [list](#)⁶⁸⁰[[Verifier](#) (page 86)]

warning_message: [str](#)⁶⁸¹ | [None](#)⁶⁸²

Message explaining the importance of this telecommand

3.5.2 CommandLevel

class `yamcs.pyddb.CommandLevel`

Bases: [Enum](#)⁶⁸³

The importance of a telecommand in terms of the nature and significance of its on-board effect.

These levels are adopted from ISO 14950:2004

644 <https://docs.python.org/3/library/functions.html#object>
645 <https://docs.python.org/3/library/stdtypes.html#str>
646 <https://docs.python.org/3/library/stdtypes.html#str>
647 <https://docs.python.org/3/library/stdtypes.html#str>
648 <https://docs.python.org/3/library/constants.html#None>
649 <https://docs.python.org/3/library/stdtypes.html#str>
650 <https://docs.python.org/3/library/constants.html#None>
651 <https://docs.python.org/3/library/stdtypes.html#str>
652 <https://docs.python.org/3/library/constants.html#None>
653 <https://docs.python.org/3/library/stdtypes.html#str>
654 <https://docs.python.org/3/library/stdtypes.html#str>
655 <https://docs.python.org/3/library/constants.html#None>
656 <https://docs.python.org/3/library/functions.html#bool>
657 <https://docs.python.org/3/library/stdtypes.html#str>
658 <https://docs.python.org/3/library/constants.html#None>
659 <https://docs.python.org/3/library/stdtypes.html#str>
660 <https://docs.python.org/3/library/constants.html#None>
661 <https://docs.python.org/3/library/constants.html#None>
662 <https://docs.python.org/3/library/constants.html#None>
663 <https://docs.python.org/3/library/stdtypes.html#str>
664 <https://docs.python.org/3/library/constants.html#None>
665 <https://docs.python.org/3/library/constants.html#None>
666 <https://docs.python.org/3/library/stdtypes.html#dict>
667 <https://docs.python.org/3/library/stdtypes.html#str>
668 <https://docs.python.org/3/library/stdtypes.html#str>
669 <https://docs.python.org/3/library/stdtypes.html#list>
670 <https://docs.python.org/3/library/stdtypes.html#dict>
671 <https://docs.python.org/3/library/stdtypes.html#str>
672 <https://docs.python.org/3/library/stdtypes.html#str>
673 <https://docs.python.org/3/library/stdtypes.html#str>
674 <https://docs.python.org/3/library/stdtypes.html#str>
675 <https://docs.python.org/3/library/constants.html#None>
676 <https://docs.python.org/3/library/stdtypes.html#str>
677 <https://docs.python.org/3/library/stdtypes.html#str>
678 <https://docs.python.org/3/library/stdtypes.html#str>
679 <https://docs.python.org/3/library/constants.html#None>
680 <https://docs.python.org/3/library/stdtypes.html#list>
681 <https://docs.python.org/3/library/stdtypes.html#str>
682 <https://docs.python.org/3/library/constants.html#None>

NORMAL = 1

Level D

VITAL = 2

Level C: Telecommands that are not critical, but essential to the success of the mission and, if sent at the wrong time, could cause momentary loss of the mission.

CRITICAL = 3

Level B: Telecommands that, if executed at the wrong time or in the wrong configuration, could cause irreversible loss or damage for the mission (i.e. endanger the achievement of the primary mission objectives)

FORBIDDEN = 4

Level A: Telecommands that are not expected to be used for nominal or foreseeable contingency operations, that are included for unforeseen contingency operations, and that could cause irreversible damage if executed at the wrong time or in the wrong configuration.

3.5.3 Argument

`class yamcs.pyddb.Argument`

Bases: `DataType` (page 64)

`__init__`(name: `str`⁶⁸⁴, *, default: `Optional`⁶⁸⁵[`Any`⁶⁸⁶] = None, short_description: `Optional`⁶⁸⁷[`str`⁶⁸⁸] = None, long_description: `Optional`⁶⁸⁹[`str`⁶⁹⁰] = None, extra: `Optional`⁶⁹¹[`Mapping`⁶⁹²[`str`⁶⁹³, `str`⁶⁹⁴]] = None, units: `Optional`⁶⁹⁵[`str`⁶⁹⁶] = None, encoding: `Optional`⁶⁹⁷[`Encoding` (page 55)] = None) → `None`⁶⁹⁸

default: `Any`⁶⁹⁹

Default value

encoding: `Encoding` (page 55) | `None`⁷⁰⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: `dict`⁷⁰¹[`str`⁷⁰², `str`⁷⁰³]

Arbitrary information, keyed by name

long_description: `str`⁷⁰⁴ | `None`⁷⁰⁵

Multiline description

name: `str`⁷⁰⁶

Short name of this argument

short_description: `str`⁷⁰⁷ | `None`⁷⁰⁸

Online description

units: `str`⁷⁰⁹ | `None`⁷¹⁰

Engineering units

⁶⁸³ <https://docs.python.org/3/library/enum.html#enum.Enum>

3.5.4 AbsoluteTimeArgument

class yamcs.pyddb.AbsoluteTimeArgument

Bases: [Argument](#) (page 40), [AbsoluteTimeDataType](#) (page 65)

__init__ (*name*: [str](#)⁷¹¹, *reference*: [Epoch](#) (page 63), *, *default*: [Optional](#)⁷¹²[Any](#)⁷¹³ = None, *short_description*: [Optional](#)⁷¹⁴[str](#)⁷¹⁵ = None, *long_description*: [Optional](#)⁷¹⁶[str](#)⁷¹⁷ = None, *extra*: [Optional](#)⁷¹⁸[Mapping](#)⁷¹⁹[str](#)⁷²⁰, [str](#)⁷²¹] = None, *units*: [Optional](#)⁷²²[str](#)⁷²³ = None, *encoding*: [Optional](#)⁷²⁴[Union](#)⁷²⁵[FloatTimeEncoding](#) (page 56), [IntegerTimeEncoding](#) (page 57)] = None) → [None](#)⁷²⁶

default: [Any](#)

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁷²⁷

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁷²⁸[str](#)⁷²⁹, [str](#)⁷³⁰]

Arbitrary information, keyed by name

long_description: [str](#)⁷³¹ | [None](#)⁷³²

Multiline description

name: [str](#)⁷³³

Short name of this argument

short_description: [str](#)⁷³⁴ | [None](#)⁷³⁵

Online description

units: [str](#)⁷³⁶ | [None](#)⁷³⁷

Engineering units

⁶⁸⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁸⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁸⁶ <https://docs.python.org/3/library/typing.html#typing.Any>
⁶⁸⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁸⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁹¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁹² <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁶⁹³ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁹⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁶⁹⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁶⁹⁸ <https://docs.python.org/3/library/constants.html#None>
⁶⁹⁹ <https://docs.python.org/3/library/typing.html#typing.Any>
⁷⁰⁰ <https://docs.python.org/3/library/constants.html#None>
⁷⁰¹ <https://docs.python.org/3/library/stdtypes.html#dict>
⁷⁰² <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁰⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁰⁵ <https://docs.python.org/3/library/constants.html#None>
⁷⁰⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁰⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁰⁸ <https://docs.python.org/3/library/constants.html#None>
⁷⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷¹⁰ <https://docs.python.org/3/library/constants.html#None>

3.5.5 AggregateArgument

`class yamcs.pyMDB.AggregateArgument`

Bases: [Argument](#) (page 40), [AggregateDataType](#) (page 66)

`__init__`(*name*: [str](#)⁷³⁸, *members*: [Sequence](#)⁷³⁹[\[Member](#) (page 74)], *, *default*: [Optional](#)⁷⁴⁰[\[Any](#)⁷⁴¹] = *None*, *short_description*: [Optional](#)⁷⁴²[\[str](#)⁷⁴³] = *None*, *long_description*: [Optional](#)⁷⁴⁴[\[str](#)⁷⁴⁵] = *None*, *extra*: [Optional](#)⁷⁴⁶[\[Mapping](#)⁷⁴⁷[\[str](#)⁷⁴⁸, *str*⁷⁴⁹]] = *None*, *encoding*: [Optional](#)⁷⁵⁰[\[Encoding](#) (page 55)] = *None*) → [None](#)⁷⁵¹

default: [Any](#)⁷⁵²

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁷⁵³

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁷⁵⁴[\[str](#)⁷⁵⁵, *str*⁷⁵⁶]

Arbitrary information, keyed by name

find_member(*name*: [str](#)⁷⁵⁷) → [Member](#) (page 74)

long_description: [str](#)⁷⁵⁸ | [None](#)⁷⁵⁹

Multiline description

name: [str](#)⁷⁶⁰

Short name of this argument

short_description: [str](#)⁷⁶¹ | [None](#)⁷⁶²

Online description

units: [str](#)⁷⁶³ | [None](#)⁷⁶⁴

Engineering units

⁷¹¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷¹² <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷¹³ <https://docs.python.org/3/library/typing.html#typing.Any>
⁷¹⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷¹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷¹⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁷¹⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷¹⁹ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁷²⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁷²¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷²² <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷²³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷²⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷²⁵ <https://docs.python.org/3/library/typing.html#typing.Union>
⁷²⁶ <https://docs.python.org/3/library/constants.html#None>
⁷²⁷ <https://docs.python.org/3/library/constants.html#None>
⁷²⁸ <https://docs.python.org/3/library/stdtypes.html#dict>
⁷²⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³² <https://docs.python.org/3/library/constants.html#None>
⁷³³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³⁵ <https://docs.python.org/3/library/constants.html#None>
⁷³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³⁷ <https://docs.python.org/3/library/constants.html#None>

3.5.6 ArrayArgument

class yamcs.pyMDB.ArrayArgument

Bases: [Argument](#) (page 40), [ArrayDataType](#) (page 67)

__init__ (*name*: [str](#)⁷⁶⁵, *data_type*: [DataType](#) (page 64), *length*: [int](#)⁷⁶⁶, *, *default*: [Optional](#)⁷⁶⁷ [[Any](#)⁷⁶⁸] = None, *short_description*: [Optional](#)⁷⁶⁹ [[str](#)⁷⁷⁰] = None, *long_description*: [Optional](#)⁷⁷¹ [[str](#)⁷⁷²] = None, *extra*: [Optional](#)⁷⁷³ [[Mapping](#)⁷⁷⁴ [[str](#)⁷⁷⁵, [str](#)⁷⁷⁶]] = None, *encoding*: [Optional](#)⁷⁷⁷ [[Encoding](#) (page 55)] = None) → [None](#)⁷⁷⁸

default: [Any](#)

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁷⁷⁹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁷⁸⁰ [[str](#)⁷⁸¹, [str](#)⁷⁸²]

Arbitrary information, keyed by name

long_description: [str](#)⁷⁸³ | [None](#)⁷⁸⁴

Multiline description

name: [str](#)⁷⁸⁵

Short name of this argument

short_description: [str](#)⁷⁸⁶ | [None](#)⁷⁸⁷

Online description

units: [str](#)⁷⁸⁸ | [None](#)⁷⁸⁹

Engineering units

⁷³⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁷³⁹ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>
⁷⁴⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁴¹ <https://docs.python.org/3/library/typing.html#typing.Any>
⁷⁴² <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁴³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁴⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁴⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁴⁷ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁷⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁴⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁵⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁵¹ <https://docs.python.org/3/library/constants.html#None>
⁷⁵² <https://docs.python.org/3/library/typing.html#typing.Any>
⁷⁵³ <https://docs.python.org/3/library/constants.html#None>
⁷⁵⁴ <https://docs.python.org/3/library/stdtypes.html#dict>
⁷⁵⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁵⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁵⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁵⁹ <https://docs.python.org/3/library/constants.html#None>
⁷⁶⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁶¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁶² <https://docs.python.org/3/library/constants.html#None>
⁷⁶³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁶⁴ <https://docs.python.org/3/library/constants.html#None>

3.5.7 BinaryArgument

`class yamcs.pyMDB.BinaryArgument`

Bases: [Argument](#) (page 40), [BinaryDataType](#) (page 68)

`__init__` (*name*: [str](#)⁷⁹⁰, *, *min_length*: [Optional](#)⁷⁹¹ [[int](#)⁷⁹²] = None, *max_length*: [Optional](#)⁷⁹³ [[int](#)⁷⁹⁴] = None, *default*: [Optional](#)⁷⁹⁵ [[Any](#)⁷⁹⁶] = None, *short_description*: [Optional](#)⁷⁹⁷ [[str](#)⁷⁹⁸] = None, *long_description*: [Optional](#)⁷⁹⁹ [[str](#)⁸⁰⁰] = None, *extra*: [Optional](#)⁸⁰¹ [[Mapping](#)⁸⁰² [[str](#)⁸⁰³, [str](#)⁸⁰⁴]] = None, *units*: [Optional](#)⁸⁰⁵ [[str](#)⁸⁰⁶] = None, *encoding*: [Optional](#)⁸⁰⁷ [[Encoding](#) (page 55)] = None) → [None](#)⁸⁰⁸

default: [Any](#)⁸⁰⁹

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁸¹⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁸¹¹ [[str](#)⁸¹², [str](#)⁸¹³]

Arbitrary information, keyed by name

long_description: [str](#)⁸¹⁴ | [None](#)⁸¹⁵

Multiline description

max_length: [int](#)⁸¹⁶ | [None](#)⁸¹⁷

Maximum length in bytes

min_length: [int](#)⁸¹⁸ | [None](#)⁸¹⁹

Minimum length in bytes

name: [str](#)⁸²⁰

Short name of this argument

short_description: [str](#)⁸²¹ | [None](#)⁸²²

Online description

units: [str](#)⁸²³ | [None](#)⁸²⁴

Engineering units

⁷⁶⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁶⁶ <https://docs.python.org/3/library/functions.html#int>
⁷⁶⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁶⁸ <https://docs.python.org/3/library/typing.html#typing.Any>
⁷⁶⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁷⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁷¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁷² <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁷³ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁷⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁷⁷⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁷⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁷⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁷⁸ <https://docs.python.org/3/library/constants.html#None>
⁷⁷⁹ <https://docs.python.org/3/library/constants.html#None>
⁷⁸⁰ <https://docs.python.org/3/library/stdtypes.html#dict>
⁷⁸¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸² <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸³ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸⁴ <https://docs.python.org/3/library/constants.html#None>
⁷⁸⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸⁷ <https://docs.python.org/3/library/constants.html#None>
⁷⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁸⁹ <https://docs.python.org/3/library/constants.html#None>

3.5.8 BooleanArgument

class yamcs.pyMDB.BooleanArgument

Bases: [Argument](#) (page 40), [BooleanDataType](#) (page 69)

__init__(name: [str](#)⁸²⁵, *, zero_string_value: [str](#)⁸²⁶ = 'False', one_string_value: [str](#)⁸²⁷ = 'True', default: [Optional](#)⁸²⁸[[Any](#)⁸²⁹] = None, short_description: [Optional](#)⁸³⁰[[str](#)⁸³¹] = None, long_description: [Optional](#)⁸³²[[str](#)⁸³³] = None, extra: [Optional](#)⁸³⁴[[Mapping](#)⁸³⁵[[str](#)⁸³⁶, [str](#)⁸³⁷]] = None, units: [Optional](#)⁸³⁸[[str](#)⁸³⁹] = None, encoding: [Optional](#)⁸⁴⁰[[Encoding](#) (page 55)] = None) → [None](#)⁸⁴¹

default: [Any](#)⁸⁴²

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁸⁴³

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁸⁴⁴[[str](#)⁸⁴⁵, [str](#)⁸⁴⁶]

Arbitrary information, keyed by name

long_description: [str](#)⁸⁴⁷ | [None](#)⁸⁴⁸

Multiline description

name: [str](#)⁸⁴⁹

Short name of this argument

short_description: [str](#)⁸⁵⁰ | [None](#)⁸⁵¹

Online description

⁷⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁹¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁹² <https://docs.python.org/3/library/functions.html#int>
⁷⁹³ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁹⁴ <https://docs.python.org/3/library/functions.html#int>
⁷⁹⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁹⁶ <https://docs.python.org/3/library/typing.html#typing.Any>
⁷⁹⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁷⁹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁷⁹⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸⁰⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁰¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸⁰² <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁸⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁰⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁰⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸⁰⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁰⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸⁰⁸ <https://docs.python.org/3/library/constants.html#None>
⁸⁰⁹ <https://docs.python.org/3/library/typing.html#typing.Any>
⁸¹⁰ <https://docs.python.org/3/library/constants.html#None>
⁸¹¹ <https://docs.python.org/3/library/stdtypes.html#dict>
⁸¹² <https://docs.python.org/3/library/stdtypes.html#str>
⁸¹³ <https://docs.python.org/3/library/stdtypes.html#str>
⁸¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁸¹⁵ <https://docs.python.org/3/library/constants.html#None>
⁸¹⁶ <https://docs.python.org/3/library/functions.html#int>
⁸¹⁷ <https://docs.python.org/3/library/constants.html#None>
⁸¹⁸ <https://docs.python.org/3/library/functions.html#int>
⁸¹⁹ <https://docs.python.org/3/library/constants.html#None>
⁸²⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²² <https://docs.python.org/3/library/constants.html#None>
⁸²³ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²⁴ <https://docs.python.org/3/library/constants.html#None>

units: [str](#)⁸⁵² | [None](#)⁸⁵³

Engineering units

3.5.9 EnumeratedArgument

class `yamcs.pyddb.EnumeratedArgument`

Bases: [Argument](#) (page 40), [EnumeratedDataType](#) (page 70)

__init__(*name*: [str](#)⁸⁵⁴, *choices*: [Sequence](#)⁸⁵⁵[[tuple](#)⁸⁵⁶[[int](#)⁸⁵⁷, [str](#)⁸⁵⁸] | [tuple](#)⁸⁵⁹[[int](#)⁸⁶⁰, [str](#)⁸⁶¹, [str](#)⁸⁶²]] | [type](#)⁸⁶³[[Enum](#)⁸⁶⁴], *, *default*: [Optional](#)⁸⁶⁵[[Any](#)⁸⁶⁶] = [None](#), *short_description*: [Optional](#)⁸⁶⁷[[str](#)⁸⁶⁸] = [None](#), *long_description*: [Optional](#)⁸⁶⁹[[str](#)⁸⁷⁰] = [None](#), *extra*: [Optional](#)⁸⁷¹[[Mapping](#)⁸⁷²[[str](#)⁸⁷³, [str](#)⁸⁷⁴]] = [None](#), *units*: [Optional](#)⁸⁷⁵[[str](#)⁸⁷⁶] = [None](#), *encoding*: [Optional](#)⁸⁷⁷[[Encoding](#) (page 55)] = [None](#)) → [None](#)⁸⁷⁸

default: [Any](#)⁸⁷⁹

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁸⁸⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁸⁸¹[[str](#)⁸⁸², [str](#)⁸⁸³]

Arbitrary information, keyed by name

label_for(*value*: [int](#)⁸⁸⁴)

long_description: [str](#)⁸⁸⁵ | [None](#)⁸⁸⁶

Multiline description

name: [str](#)⁸⁸⁷

Short name of this argument

short_description: [str](#)⁸⁸⁸ | [None](#)⁸⁸⁹

Online description

⁸²⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁸²⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸²⁹ <https://docs.python.org/3/library/typing.html#typing.Any>
⁸³⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸³¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁸³² <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸³³ <https://docs.python.org/3/library/stdtypes.html#str>
⁸³⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸³⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁸³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁸³⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁸³⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸³⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁴⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁸⁴¹ <https://docs.python.org/3/library/constants.html#None>
⁸⁴² <https://docs.python.org/3/library/typing.html#typing.Any>
⁸⁴³ <https://docs.python.org/3/library/constants.html#None>
⁸⁴⁴ <https://docs.python.org/3/library/stdtypes.html#dict>
⁸⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁴⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁴⁸ <https://docs.python.org/3/library/constants.html#None>
⁸⁴⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁵⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁵¹ <https://docs.python.org/3/library/constants.html#None>
⁸⁵² <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁵³ <https://docs.python.org/3/library/constants.html#None>

units: [str](#)⁸⁹⁰ | [None](#)⁸⁹¹

Engineering units

3.5.10 FloatArgument

class yamcs.pymdb.FloatArgument

Bases: [Argument](#) (page 40), [FloatDataType](#) (page 71)

__init__(name: [str](#)⁸⁹², bits: Literal[32, 64] = 32, *, minimum: [float](#)⁸⁹³ | [None](#)⁸⁹⁴ = None, minimum_inclusive: [bool](#)⁸⁹⁵ = True, maximum: [float](#)⁸⁹⁶ | [None](#)⁸⁹⁷ = None, maximum_inclusive: [bool](#)⁸⁹⁸ = True, default: Any = None, short_description: [str](#)⁸⁹⁹ | [None](#)⁹⁰⁰ = None, long_description: [str](#)⁹⁰¹ | [None](#)⁹⁰² = None, extra: Mapping[[str](#)⁹⁰³, [str](#)⁹⁰⁴] | [None](#)⁹⁰⁵ = None, units: [str](#)⁹⁰⁶ | [None](#)⁹⁰⁷ = None, encoding: [Encoding](#) (page 55) | [None](#)⁹⁰⁸ = None, calibrator: [Calibrator](#) (page 59) | [None](#)⁹⁰⁹ = None) → [None](#)⁹¹⁰

calibrator: [Calibrator](#) (page 59) | [None](#)⁹¹¹

Describes how a raw value is transformed to an engineering value

default: Any

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁹¹²

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁹¹³[[str](#)⁹¹⁴, [str](#)⁹¹⁵]

Arbitrary information, keyed by name

854 <https://docs.python.org/3/library/stdtypes.html#str>
855 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>
856 <https://docs.python.org/3/library/stdtypes.html#tuple>
857 <https://docs.python.org/3/library/functions.html#int>
858 <https://docs.python.org/3/library/stdtypes.html#str>
859 <https://docs.python.org/3/library/stdtypes.html#tuple>
860 <https://docs.python.org/3/library/functions.html#int>
861 <https://docs.python.org/3/library/stdtypes.html#str>
862 <https://docs.python.org/3/library/stdtypes.html#str>
863 <https://docs.python.org/3/library/functions.html#type>
864 <https://docs.python.org/3/library/enum.html#enum.Enum>
865 <https://docs.python.org/3/library/typing.html#typing.Optional>
866 <https://docs.python.org/3/library/typing.html#typing.Any>
867 <https://docs.python.org/3/library/typing.html#typing.Optional>
868 <https://docs.python.org/3/library/stdtypes.html#str>
869 <https://docs.python.org/3/library/typing.html#typing.Optional>
870 <https://docs.python.org/3/library/stdtypes.html#str>
871 <https://docs.python.org/3/library/typing.html#typing.Optional>
872 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
873 <https://docs.python.org/3/library/stdtypes.html#str>
874 <https://docs.python.org/3/library/stdtypes.html#str>
875 <https://docs.python.org/3/library/typing.html#typing.Optional>
876 <https://docs.python.org/3/library/stdtypes.html#str>
877 <https://docs.python.org/3/library/typing.html#typing.Optional>
878 <https://docs.python.org/3/library/constants.html#None>
879 <https://docs.python.org/3/library/typing.html#typing.Any>
880 <https://docs.python.org/3/library/constants.html#None>
881 <https://docs.python.org/3/library/stdtypes.html#dict>
882 <https://docs.python.org/3/library/stdtypes.html#str>
883 <https://docs.python.org/3/library/stdtypes.html#str>
884 <https://docs.python.org/3/library/functions.html#int>
885 <https://docs.python.org/3/library/stdtypes.html#str>
886 <https://docs.python.org/3/library/constants.html#None>
887 <https://docs.python.org/3/library/stdtypes.html#str>
888 <https://docs.python.org/3/library/stdtypes.html#str>
889 <https://docs.python.org/3/library/constants.html#None>
890 <https://docs.python.org/3/library/stdtypes.html#str>
891 <https://docs.python.org/3/library/constants.html#None>

long_description: [str](#)⁹¹⁶ | [None](#)⁹¹⁷
 Multiline description

maximum: [float](#)⁹¹⁸ | [None](#)⁹¹⁹
 Maximum valid engineering value (inclusive)

maximum_inclusive: [bool](#)⁹²⁰
 Whether the maximum value itself is valid

minimum: [float](#)⁹²¹ | [None](#)⁹²²
 Minimum valid engineering value

minimum_inclusive: [bool](#)⁹²³
 Whether the minimum value itself is valid

name: [str](#)⁹²⁴
 Short name of this argument

short_description: [str](#)⁹²⁵ | [None](#)⁹²⁶
 Online description

units: [str](#)⁹²⁷ | [None](#)⁹²⁸
 Engineering units

3.5.11 IntegerArgument

⁸⁹² <https://docs.python.org/3/library/stdtypes.html#str>
⁸⁹³ <https://docs.python.org/3/library/functions.html#float>
⁸⁹⁴ <https://docs.python.org/3/library/constants.html#None>
⁸⁹⁵ <https://docs.python.org/3/library/functions.html#bool>
⁸⁹⁶ <https://docs.python.org/3/library/functions.html#float>
⁸⁹⁷ <https://docs.python.org/3/library/constants.html#None>
⁸⁹⁸ <https://docs.python.org/3/library/functions.html#bool>
⁸⁹⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁰⁰ <https://docs.python.org/3/library/constants.html#None>
⁹⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁰² <https://docs.python.org/3/library/constants.html#None>
⁹⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁰⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁰⁵ <https://docs.python.org/3/library/constants.html#None>
⁹⁰⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁰⁷ <https://docs.python.org/3/library/constants.html#None>
⁹⁰⁸ <https://docs.python.org/3/library/constants.html#None>
⁹⁰⁹ <https://docs.python.org/3/library/constants.html#None>
⁹¹⁰ <https://docs.python.org/3/library/constants.html#None>
⁹¹¹ <https://docs.python.org/3/library/constants.html#None>
⁹¹² <https://docs.python.org/3/library/constants.html#None>
⁹¹³ <https://docs.python.org/3/library/stdtypes.html#dict>
⁹¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹¹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁹¹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁹¹⁷ <https://docs.python.org/3/library/constants.html#None>
⁹¹⁸ <https://docs.python.org/3/library/functions.html#float>
⁹¹⁹ <https://docs.python.org/3/library/constants.html#None>
⁹²⁰ <https://docs.python.org/3/library/functions.html#bool>
⁹²¹ <https://docs.python.org/3/library/functions.html#float>
⁹²² <https://docs.python.org/3/library/constants.html#None>
⁹²³ <https://docs.python.org/3/library/functions.html#bool>
⁹²⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹²⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁹²⁶ <https://docs.python.org/3/library/constants.html#None>
⁹²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁹²⁸ <https://docs.python.org/3/library/constants.html#None>

class yamcs.pyMDB.IntegerArgument

Bases: [Argument](#) (page 40), [IntegerDataType](#) (page 72)

__init__(name: [str](#)⁹²⁹, *, signed: [bool](#)⁹³⁰ = True, bits: [int](#)⁹³¹ = 32, minimum: [int](#)⁹³² | [None](#)⁹³³ = None, maximum: [int](#)⁹³⁴ | [None](#)⁹³⁵ = None, default: Any = None, short_description: [str](#)⁹³⁶ | [None](#)⁹³⁷ = None, long_description: [str](#)⁹³⁸ | [None](#)⁹³⁹ = None, extra: Mapping[[str](#)⁹⁴⁰, [str](#)⁹⁴¹] | [None](#)⁹⁴² = None, units: [str](#)⁹⁴³ | [None](#)⁹⁴⁴ = None, encoding: [Encoding](#) (page 55) | [None](#)⁹⁴⁵ = None, calibrator: [Calibrator](#) (page 59) | [None](#)⁹⁴⁶ = None) → [None](#)⁹⁴⁷

calibrator: [Calibrator](#) (page 59) | [None](#)⁹⁴⁸

Describes how a raw value is transformed to an engineering value

default: Any

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁹⁴⁹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁹⁵⁰[[str](#)⁹⁵¹, [str](#)⁹⁵²]

Arbitrary information, keyed by name

long_description: [str](#)⁹⁵³ | [None](#)⁹⁵⁴

Multiline description

maximum: [int](#)⁹⁵⁵ | [None](#)⁹⁵⁶

Maximum valid engineering value (inclusive)

minimum: [int](#)⁹⁵⁷ | [None](#)⁹⁵⁸

Minimum valid engineering value (inclusive)

name: [str](#)⁹⁵⁹

Short name of this argument

short_description: [str](#)⁹⁶⁰ | [None](#)⁹⁶¹

Online description

units: [str](#)⁹⁶² | [None](#)⁹⁶³

Engineering units

3.5.12 StringArgument

class `yamcs.pyMDB.StringArgument`

Bases: [Argument](#) (page 40), [StringDataType](#) (page 73)

__init__ (*name*: [str](#)⁹⁶⁴, *, *min_length*: [Optional](#)⁹⁶⁵ [[int](#)⁹⁶⁶] = `None`, *max_length*: [Optional](#)⁹⁶⁷ [[int](#)⁹⁶⁸] = `None`, *default*: [Optional](#)⁹⁶⁹ [[Any](#)⁹⁷⁰] = `None`, *short_description*: [Optional](#)⁹⁷¹ [[str](#)⁹⁷²] = `None`, *long_description*: [Optional](#)⁹⁷³ [[str](#)⁹⁷⁴] = `None`, *extra*: [Optional](#)⁹⁷⁵ [[Mapping](#)⁹⁷⁶ [[str](#)⁹⁷⁷, [str](#)⁹⁷⁸]] = `None`, *units*: [Optional](#)⁹⁷⁹ [[str](#)⁹⁸⁰] = `None`, *encoding*: [Optional](#)⁹⁸¹ [[Encoding](#) (page 55)] = `None`) → [None](#)⁹⁸²

default: [Any](#)⁹⁸³

Default value

encoding: [Encoding](#) (page 55) | [None](#)⁹⁸⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)⁹⁸⁵ [[str](#)⁹⁸⁶, [str](#)⁹⁸⁷]

Arbitrary information, keyed by name

long_description: [str](#)⁹⁸⁸ | [None](#)⁹⁸⁹

Multiline description

max_length: [int](#)⁹⁹⁰ | [None](#)⁹⁹¹

Maximum length in characters

min_length: [int](#)⁹⁹² | [None](#)⁹⁹³

Minimum length in characters

⁹²⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹³⁰ <https://docs.python.org/3/library/functions.html#bool>
⁹³¹ <https://docs.python.org/3/library/functions.html#int>
⁹³² <https://docs.python.org/3/library/functions.html#int>
⁹³³ <https://docs.python.org/3/library/constants.html#None>
⁹³⁴ <https://docs.python.org/3/library/functions.html#int>
⁹³⁵ <https://docs.python.org/3/library/constants.html#None>
⁹³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁹³⁷ <https://docs.python.org/3/library/constants.html#None>
⁹³⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁹³⁹ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁴² <https://docs.python.org/3/library/constants.html#None>
⁹⁴³ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁴⁴ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁵ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁶ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁷ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁸ <https://docs.python.org/3/library/constants.html#None>
⁹⁴⁹ <https://docs.python.org/3/library/constants.html#None>
⁹⁵⁰ <https://docs.python.org/3/library/stdtypes.html#dict>
⁹⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁵² <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁵⁴ <https://docs.python.org/3/library/constants.html#None>
⁹⁵⁵ <https://docs.python.org/3/library/functions.html#int>
⁹⁵⁶ <https://docs.python.org/3/library/constants.html#None>
⁹⁵⁷ <https://docs.python.org/3/library/functions.html#int>
⁹⁵⁸ <https://docs.python.org/3/library/constants.html#None>
⁹⁵⁹ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁶⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁶¹ <https://docs.python.org/3/library/constants.html#None>
⁹⁶² <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁶³ <https://docs.python.org/3/library/constants.html#None>

name: [str](#)⁹⁹⁴
 Short name of this argument

short_description: [str](#)⁹⁹⁵ | [None](#)⁹⁹⁶
 Online description

units: [str](#)⁹⁹⁷ | [None](#)⁹⁹⁸
 Engineering units

3.5.13 ArgumentEntry

class `yamcs.pyddb.ArgumentEntry`

Bases: [object](#)⁹⁹⁹

__init__(*argument:* [Argument](#) (page 40), *, *short_description:* [Optional](#)¹⁰⁰⁰[[str](#)¹⁰⁰¹] = [None](#), *bitpos:* [Optional](#)¹⁰⁰²[[int](#)¹⁰⁰³] = [None](#), *offset:* [int](#)¹⁰⁰⁴ = 0, *condition:* [Optional](#)¹⁰⁰⁵[[Expression](#)] = [None](#)) → [None](#)¹⁰⁰⁶

bitpos: [int](#)¹⁰⁰⁷ | [None](#)¹⁰⁰⁸

Absolute position within the container, in bits.

If unspecified, this entry is positioned relative to the preceding entry.

condition: `yamcs.pyddb.expressions.Expression` | [None](#)¹⁰⁰⁹

If set, this entry is only present when the condition is met

offset: [int](#)¹⁰¹⁰

Distance in bits to the preceding entry.

⁹⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁶⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁶⁶ <https://docs.python.org/3/library/functions.html#int>
⁹⁶⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁶⁸ <https://docs.python.org/3/library/functions.html#int>
⁹⁶⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁷⁰ <https://docs.python.org/3/library/typing.html#typing.Any>
⁹⁷¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁷² <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁷³ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁷⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁷⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁷⁶ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
⁹⁷⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁷⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁸⁰ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁸¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
⁹⁸² <https://docs.python.org/3/library/constants.html#None>
⁹⁸³ <https://docs.python.org/3/library/typing.html#typing.Any>
⁹⁸⁴ <https://docs.python.org/3/library/constants.html#None>
⁹⁸⁵ <https://docs.python.org/3/library/stdtypes.html#dict>
⁹⁸⁶ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁸⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁸⁹ <https://docs.python.org/3/library/constants.html#None>
⁹⁹⁰ <https://docs.python.org/3/library/functions.html#int>
⁹⁹¹ <https://docs.python.org/3/library/constants.html#None>
⁹⁹² <https://docs.python.org/3/library/functions.html#int>
⁹⁹³ <https://docs.python.org/3/library/constants.html#None>
⁹⁹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁹⁶ <https://docs.python.org/3/library/constants.html#None>
⁹⁹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
⁹⁹⁸ <https://docs.python.org/3/library/constants.html#None>

While not expected, if both [bitpos](#) (page 51) and [offset](#) (page 51) are specified, the two are added together for establishing the real absolute bit position.

short_description: [str](#)¹⁰¹¹ | [None](#)¹⁰¹²

Online description

3.5.14 FixedValueEntry

class `yamcs.pyddb.FixedValueEntry`

Bases: [object](#)¹⁰¹³

__init__(*binary*: [bytes](#)¹⁰¹⁴ | [str](#)¹⁰¹⁵, *name*: [Optional](#)¹⁰¹⁶[[str](#)¹⁰¹⁷] = [None](#), *, *short_description*: [Optional](#)¹⁰¹⁸[[str](#)¹⁰¹⁹] = [None](#), *bitpos*: [Optional](#)¹⁰²⁰[[int](#)¹⁰²¹] = [None](#), *offset*: [int](#)¹⁰²² = 0, *condition*: [Optional](#)¹⁰²³[[Expression](#)] = [None](#), *bits*: [Optional](#)¹⁰²⁴[[int](#)¹⁰²⁵] = [None](#)) → [None](#)¹⁰²⁶

binary: [bytes](#)¹⁰²⁷

The fixed value to be encoded.

The value may be provided in any of these ways:

- Bytes: `b\xDE\xAD\xBE\xEF`
- Hex string: `"DEADBEEF"`

bitpos: [int](#)¹⁰²⁸ | [None](#)¹⁰²⁹

Absolute position within the container, in bits.

If unspecified, this entry is positioned relative to the preceding entry.

bits: [int](#)¹⁰³⁰ | [None](#)¹⁰³¹

If unspecified, its value is derived from the provided [binary](#) (page 52) value.

If less than the bit size of the [binary](#) (page 52) attribute, the value is left-padded with zeros.

If larger than the bit size of the [binary](#) (page 52) attribute, the most-significant bits are dropped.

condition: `yamcs.pyddb.expressions.Expression` | [None](#)¹⁰³²

If set, encode this entry only when the condition is met

name: [str](#)¹⁰³³ | [None](#)¹⁰³⁴

Optional name

offset: [int](#)¹⁰³⁵

Distance in bits to the preceding entry.

While not expected, if both [bitpos](#) (page 52) and [offset](#) (page 52) are specified, the two are added together for establishing the real absolute bit position.

⁹⁹⁹ <https://docs.python.org/3/library/functions.html#object>
¹⁰⁰⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰⁰² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰⁰³ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁰⁴ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁰⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰⁰⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁰⁰⁷ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁰⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁰⁰⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁰¹⁰ <https://docs.python.org/3/library/functions.html#int>
¹⁰¹¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰¹² <https://docs.python.org/3/library/constants.html#None>

short_description: [str](#)¹⁰³⁶ | [None](#)¹⁰³⁷

Online description

3.5.15 TransmissionConstraint

class yamcs.pyldb.TransmissionConstraint

Bases: [object](#)¹⁰³⁸

__init__(*expression: Expression*, *, *timeout: float*¹⁰³⁹ = 0)

expression: **Expression**

Expression that must be satisfied

timeout: [float](#)¹⁰⁴⁰

How long to wait for the constraint to be satisfied (in seconds)

3.6 Encodings

3.6.1 Charset

class yamcs.pyldb.Charset

Bases: [Enum](#)¹⁰⁴¹

String encoding

US_ASCII = 1

US-ASCII

ISO_8859_1 = 2

ISO-8859-1

WINDOWS_1252 = 3

Windows-1252

¹⁰¹³ <https://docs.python.org/3/library/functions.html#object>
¹⁰¹⁴ <https://docs.python.org/3/library/stdtypes.html#bytes>
¹⁰¹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰¹⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰¹⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰¹⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰²⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰²¹ <https://docs.python.org/3/library/functions.html#int>
¹⁰²² <https://docs.python.org/3/library/functions.html#int>
¹⁰²³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰²⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰²⁵ <https://docs.python.org/3/library/functions.html#int>
¹⁰²⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁰²⁷ <https://docs.python.org/3/library/stdtypes.html#bytes>
¹⁰²⁸ <https://docs.python.org/3/library/functions.html#int>
¹⁰²⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁰³⁰ <https://docs.python.org/3/library/functions.html#int>
¹⁰³¹ <https://docs.python.org/3/library/constants.html#None>
¹⁰³² <https://docs.python.org/3/library/constants.html#None>
¹⁰³³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰³⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁰³⁵ <https://docs.python.org/3/library/functions.html#int>
¹⁰³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁰³⁷ <https://docs.python.org/3/library/constants.html#None>
¹⁰³⁸ <https://docs.python.org/3/library/functions.html#object>
¹⁰³⁹ <https://docs.python.org/3/library/functions.html#float>
¹⁰⁴⁰ <https://docs.python.org/3/library/functions.html#float>

```

UTF_8 = 4
    UTF-8
UTF_16 = 5
    UTF-16
UTF_16LE = 6
    UTF-16LE
UTF_16BE = 7
    UTF-16BE
UTF_32 = 8
    UTF-32
UTF_32LE = 9
    UTF-32LE
UTF_32BE = 10
    UTF-16BE

```

3.6.2 FloatEncodingScheme

```
class yamcs.pyddb.FloatEncodingScheme
```

Bases: [Enum](#)¹⁰⁴²

Float encoding

```
IEEE754_1985 = 1
```

IEEE 754-1985

```
MILSTD_1750A = 2
```

MIL-STD-1750A

```
STRING = 3
```

String-encoded float

Warning: This scheme is not supported by XTCE, and will lead to invalid XML exports. However, that XML will be correctly understood by Yamcs, which does support string-based float encodings.

An alternative is to use a [StringEncoding](#) (page 57) for a [FloatParameter](#) (page 17), but then you will not be able to use use calibrators.

3.6.3 IntegerEncodingScheme

```
class yamcs.pyddb.IntegerEncodingScheme
```

Bases: [Enum](#)¹⁰⁴³

Integer encoding

```
UNSIGNED = 1
```

Unsigned

¹⁰⁴¹ <https://docs.python.org/3/library/enum.html#enum.Enum>

¹⁰⁴² <https://docs.python.org/3/library/enum.html#enum.Enum>

SIGN_MAGNITUDE = 2
Sign-magnitude

TWOS_COMPLEMENT = 3
Two's complement

ONES_COMPLEMENT = 4
Ones' complement

STRING = 5
String-encoded integer

Warning: This scheme is not supported by XTCE, and will lead to invalid XML exports. However, that XML will be correctly understood by Yamcs, which does support string-based integer encodings.

An alternative is to use a [StringEncoding](#) (page 57) for an [IntegerParameter](#) (page 19), but then you will not be able to use use calibrators.

3.6.4 Encoding

```
class yamcs.pyddb.Encoding
    Bases: object1044

    __init__(bits: Optional1045[int1046] = None) → None1047
```

3.6.5 BinaryEncoding

```
class yamcs.pyddb.BinaryEncoding
    Bases: Encoding (page 55)

    __init__(bits: int1048 | None1049 = None, length_bits: int1050 | None1051 = None, encoder:
        UnnamedAlgorithm (page 36) | None1052 = None, decoder: UnnamedAlgorithm (page 36) |
        None1053 = None) → None1054

    decoder: UnnamedAlgorithm (page 36) | None1055
        Custom decoder, when this encoding is used for telemetry

    encoder: UnnamedAlgorithm (page 36) | None1056
        Custom encoder, when this encoding is used for telecommanding

    length_bits: int1057 | None1058
        Length in bits of a leading size tag
```

¹⁰⁴³ <https://docs.python.org/3/library/enum.html#enum.Enum>

¹⁰⁴⁴ <https://docs.python.org/3/library/functions.html#object>

¹⁰⁴⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁰⁴⁶ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁴⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁴⁸ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁴⁹ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵⁰ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁵¹ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵² <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵³ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵⁵ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵⁶ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁵⁷ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁵⁸ <https://docs.python.org/3/library/constants.html#None>

3.6.6 IntegerEncoding

`class yamcs.pyddb.IntegerEncoding`

Bases: [Encoding](#) (page 55)

`__init__`(bits: [int](#)¹⁰⁵⁹, little_endian: [bool](#)¹⁰⁶⁰ = False, scheme: [IntegerEncodingScheme](#) (page 54) = [IntegerEncodingScheme.UNSIGNED](#), string_encoding: [Optional](#)¹⁰⁶¹ [[StringEncoding](#) (page 57)] = None) → [None](#)¹⁰⁶²

`string_encoding`: [StringEncoding](#) (page 57) | [None](#)¹⁰⁶³

String encoding, required when scheme is set to STRING.

3.6.7 FloatEncoding

`class yamcs.pyddb.FloatEncoding`

Bases: [Encoding](#) (page 55)

`__init__`(bits: [int](#)¹⁰⁶⁴, little_endian: [bool](#)¹⁰⁶⁵ = False, scheme: [FloatEncodingScheme](#) (page 54) = [FloatEncodingScheme.IEEE754_1985](#), string_encoding: [Optional](#)¹⁰⁶⁶ [[StringEncoding](#) (page 57)] = None) → [None](#)¹⁰⁶⁷

`string_encoding`: [StringEncoding](#) (page 57) | [None](#)¹⁰⁶⁸

String encoding, required when scheme is set to STRING.

3.6.8 FloatTimeEncoding

`class yamcs.pyddb.FloatTimeEncoding`

Bases: [FloatEncoding](#) (page 56)

`__init__`(bits: [int](#)¹⁰⁶⁹, little_endian: [bool](#)¹⁰⁷⁰ = False, scheme: [FloatEncodingScheme](#) (page 54) = [FloatEncodingScheme.IEEE754_1985](#), offset: [float](#)¹⁰⁷¹ = 0, scale: [float](#)¹⁰⁷² = 1) → [None](#)¹⁰⁷³

`little_endian`: [bool](#)¹⁰⁷⁴

`scheme`: [FloatEncodingScheme](#) (page 54)

`string_encoding`: [StringEncoding](#) (page 57) | [None](#)¹⁰⁷⁵

String encoding, required when [scheme](#) (page 56) is set to STRING.

¹⁰⁵⁹ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁶⁰ <https://docs.python.org/3/library/functions.html#bool>

¹⁰⁶¹ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁰⁶² <https://docs.python.org/3/library/constants.html#None>

¹⁰⁶³ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁶⁴ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁶⁵ <https://docs.python.org/3/library/functions.html#bool>

¹⁰⁶⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁰⁶⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁶⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁶⁹ <https://docs.python.org/3/library/functions.html#int>

¹⁰⁷⁰ <https://docs.python.org/3/library/functions.html#bool>

¹⁰⁷¹ <https://docs.python.org/3/library/functions.html#float>

¹⁰⁷² <https://docs.python.org/3/library/functions.html#float>

¹⁰⁷³ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁷⁴ <https://docs.python.org/3/library/functions.html#bool>

¹⁰⁷⁵ <https://docs.python.org/3/library/constants.html#None>

3.6.9 IntegerTimeEncoding

`class yamcs.pymdb.IntegerTimeEncoding`

Bases: [IntegerEncoding](#) (page 56)

`__init__`(bits: [int](#)¹⁰⁷⁶, little_endian: [bool](#)¹⁰⁷⁷ = False, scheme: [IntegerEncodingScheme](#) (page 54) = [IntegerEncodingScheme.UNSIGNED](#), offset: [float](#)¹⁰⁷⁸ = 0, scale: [float](#)¹⁰⁷⁹ = 1) → [None](#)¹⁰⁸⁰

little_endian: [bool](#)¹⁰⁸¹

scheme: [IntegerEncodingScheme](#) (page 54)

string_encoding: [StringEncoding](#) (page 57) | [None](#)¹⁰⁸²

String encoding, required when [scheme](#) (page 57) is set to STRING.

3.6.10 StringEncoding

`class yamcs.pymdb.StringEncoding`

Bases: [Encoding](#) (page 55)

`__init__`(bits: [Optional](#)¹⁰⁸³[[int](#)¹⁰⁸⁴] = None, length_bits: [Optional](#)¹⁰⁸⁵[[int](#)¹⁰⁸⁶] = None, max_bits: [int](#)¹⁰⁸⁷ | [None](#)¹⁰⁸⁸ = 8388608, charset: [Charset](#) (page 53) = [Charset.US_ASCII](#), termination: [bytes](#)¹⁰⁸⁹ = b'\x00') → [None](#)¹⁰⁹⁰

max_bits: [int](#)¹⁰⁹¹ | [None](#)¹⁰⁹²

Maximum number of bits, in case of a dynamically sized string.

This value hints Yamcs about the buffer size that is allocated to read the string, although Yamcs can choose to use a smaller buffer when it can.

Default is 1 MB

3.6.11 Common encodings

The encodings module contains reusable data encodings. These are optional to use as you can create entirely custom data encodings.

3.6.11.1 Unsigned integers

`pymdb.uint1_t` unsigned 1-bit integer

`pymdb.uint2_t` unsigned 2-bit integer

¹⁰⁷⁶ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁷⁷ <https://docs.python.org/3/library/functions.html#bool>
¹⁰⁷⁸ <https://docs.python.org/3/library/functions.html#float>
¹⁰⁷⁹ <https://docs.python.org/3/library/functions.html#float>
¹⁰⁸⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁰⁸¹ <https://docs.python.org/3/library/functions.html#bool>
¹⁰⁸² <https://docs.python.org/3/library/constants.html#None>
¹⁰⁸³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰⁸⁴ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁸⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁰⁸⁶ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁸⁷ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁸⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁰⁸⁹ <https://docs.python.org/3/library/stdtypes.html#bytes>
¹⁰⁹⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁰⁹¹ <https://docs.python.org/3/library/functions.html#int>
¹⁰⁹² <https://docs.python.org/3/library/constants.html#None>

`pymdb.uint3_t` unsigned 3-bit integer
`pymdb.uint4_t` unsigned 4-bit integer
`pymdb.uint5_t` unsigned 5-bit integer
`pymdb.uint6_t` unsigned 6-bit integer
`pymdb.uint7_t` unsigned 7-bit integer
`pymdb.uint8_t` unsigned 8-bit integer
`pymdb.uint9_t` unsigned 9-bit integer
`pymdb.uint10_t` unsigned 10-bit integer
`pymdb.uint11_t` unsigned 11-bit integer
`pymdb.uint12_t` unsigned 12-bit integer
`pymdb.uint13_t` unsigned 13-bit integer
`pymdb.uint14_t` unsigned 14-bit integer
`pymdb.uint15_t` unsigned 15-bit integer
`pymdb.uint16_t` unsigned 16-bit integer
`pymdb.uint24_t` unsigned 24-bit integer
`pymdb.uint32_t` unsigned 32-bit integer

3.6.11.2 Signed integers

`pymdb.int8_t` signed 8-bit integer (big endian)
`pymdb.int16_t` signed 16-bit integer (big endian)
`pymdb.int24_t` signed 24-bit integer (big endian)
`pymdb.int32_t` signed 32-bit integer (big endian)

3.6.11.3 Boolean integer

`pymdb.bool_t` Same as `uint8_t`. 0=False, 1=True

3.6.11.4 Floats

`pymdb.float32_t` 32-bit float in IEEE754-1985 encoding (big endian)
`pymdb.float64_t` 64-bit float in IEEE754-1985 encoding (big endian)

3.6.11.5 Little endian variants

`pymdb.uint16le_t` unsigned 16-bit integer (little endian)

`pymdb.int16le_t` signed 16-bit integer in two's complement notation (little endian)

`pymdb.uint32le_t` unsigned 32-bit integer (little endian)

`pymdb.int32le_t` signed 32-bit integer in two's complement notation (little endian)

`pymdb.float32le_t` 32-bit float in IEEE754-1985 encoding (little endian)

`pymdb.float64le_t` 64-bit float in IEEE754-1985 encoding (little endian)

3.7 Calibrators

3.7.1 Calibrator

`class yamcs.pymdb.Calibrator`

Bases: `object`¹⁰⁹³

Transform a raw value (e.g. an integer count from a spacecraft) to an engineering value for users (e.g. a float).

`__init__()` → `None`¹⁰⁹⁴

3.7.2 Polynomial

`class yamcs.pymdb.Polynomial`

Bases: `Calibrator` (page 59)

A calibration type where a curve in a raw vs calibrated plane is described using a set of polynomial coefficients. Raw values are converted to calibrated values by finding a position on the curve corresponding to the raw value.

`__init__(coefficients: list1095[float1096])` → `None`¹⁰⁹⁷

`coefficients:` `list`¹⁰⁹⁸[`float`¹⁰⁹⁹]

Coefficients ordered from X^0 to X^n

3.7.3 Interpolate

`class yamcs.pymdb.Interpolate`

Bases: `Calibrator` (page 59)

One-dimensional piecewise interpolation. A segmented line in a raw vs calibrated plane is described using a set of points. Raw values are converted to calibrated values by finding a position on the line corresponding to the raw value.

¹⁰⁹³ <https://docs.python.org/3/library/functions.html#object>

¹⁰⁹⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁹⁵ <https://docs.python.org/3/library/stdtypes.html#list>

¹⁰⁹⁶ <https://docs.python.org/3/library/functions.html#float>

¹⁰⁹⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁰⁹⁸ <https://docs.python.org/3/library/stdtypes.html#list>

¹⁰⁹⁹ <https://docs.python.org/3/library/functions.html#float>

`__init__(xp: list1100[float1101], fp: list1102[float1103]) → None1104`

`fp: list1105[float1106]`

The y-coordinates of the data-points. Should have same length as xp.

`xp: list1107[float1108]`

The x-coordinates of the data points. Should be increasing.

3.8 Alarms

3.8.1 AlarmLevel

`class yamcs.pyddb.AlarmLevel`

Bases: [Enum](#)¹¹⁰⁹

Alarm levels with increasing concern.

NORMAL = 1

Used to indicate there is no concern.

WATCH = 2

Least concern. Considered to be below the more commonly used WARNING level.

WARNING = 3

Concern that represents the most commonly used minimum concern level for many software applications.

DISTRESS = 4

An alarm level of concern in-between the more commonly used WARNING and CRITICAL levels.

CRITICAL = 5

An alarm level of concern that represents the most commonly used maximum concern level for many software applications.

SEVERE = 6

An alarm level of highest concern. Considered to be above the most commonly used Critical level.

3.8.2 Alarm

`class yamcs.pyddb.Alarm`

Bases: [object](#)¹¹¹⁰

Base class for an alarm definition

`__init__(minimum_violations: int1111 = 1)`

¹¹⁰⁰ <https://docs.python.org/3/library/stdtypes.html#list>

¹¹⁰¹ <https://docs.python.org/3/library/functions.html#float>

¹¹⁰² <https://docs.python.org/3/library/stdtypes.html#list>

¹¹⁰³ <https://docs.python.org/3/library/functions.html#float>

¹¹⁰⁴ <https://docs.python.org/3/library/constants.html#None>

¹¹⁰⁵ <https://docs.python.org/3/library/stdtypes.html#list>

¹¹⁰⁶ <https://docs.python.org/3/library/functions.html#float>

¹¹⁰⁷ <https://docs.python.org/3/library/stdtypes.html#list>

¹¹⁰⁸ <https://docs.python.org/3/library/functions.html#float>

¹¹⁰⁹ <https://docs.python.org/3/library/enum.html#enum.Enum>

¹¹¹⁰ <https://docs.python.org/3/library/functions.html#object>

¹¹¹¹ <https://docs.python.org/3/library/functions.html#int>

3.8.3 EnumerationAlarm

class yamcs.pyddb.**EnumerationAlarm**

Bases: [Alarm](#) (page 60)

Alarm definition for an [EnumeratedParameter](#) (page 25)

__init__(states: [Mapping](#)¹¹¹²[[str](#)¹¹¹³, [AlarmLevel](#) (page 60)], *, default_level: [AlarmLevel](#) (page 60) = [AlarmLevel.NORMAL](#), minimum_violations: [int](#)¹¹¹⁴ = 1)

default_level: [AlarmLevel](#) (page 60)

Default alarm level (when the parameter value is not contained in [states](#) (page 61))

states: [dict](#)¹¹¹⁵[[str](#)¹¹¹⁶, [AlarmLevel](#) (page 60)]

Alarm levels, keyed by enumeration label

3.8.4 ThresholdAlarm

class yamcs.pyddb.**ThresholdAlarm**

Bases: [Alarm](#) (page 60)

Alarm definition specifying the thresholds for detecting out of limit values.

The threshold have increasing severity levels: watch, warning, distress, critical and severe.

Warning and critical are the most commonly used levels.

__init__(*, watch_low: [Optional](#)¹¹¹⁷[[float](#)¹¹¹⁸] = None, watch_low_exclusive: [bool](#)¹¹¹⁹ = False, warning_low: [Optional](#)¹¹²⁰[[float](#)¹¹²¹] = None, warning_low_exclusive: [bool](#)¹¹²² = False, distress_low: [Optional](#)¹¹²³[[float](#)¹¹²⁴] = None, distress_low_exclusive: [bool](#)¹¹²⁵ = False, critical_low: [Optional](#)¹¹²⁶[[float](#)¹¹²⁷] = None, critical_low_exclusive: [bool](#)¹¹²⁸ = False, severe_low: [Optional](#)¹¹²⁹[[float](#)¹¹³⁰] = None, severe_low_exclusive: [bool](#)¹¹³¹ = False, severe_high: [Optional](#)¹¹³²[[float](#)¹¹³³] = None, severe_high_exclusive: [bool](#)¹¹³⁴ = False, critical_high: [Optional](#)¹¹³⁵[[float](#)¹¹³⁶] = None, critical_high_exclusive: [bool](#)¹¹³⁷ = False, distress_high: [Optional](#)¹¹³⁸[[float](#)¹¹³⁹] = None, distress_high_exclusive: [bool](#)¹¹⁴⁰ = False, warning_high: [Optional](#)¹¹⁴¹[[float](#)¹¹⁴²] = None, warning_high_exclusive: [bool](#)¹¹⁴³ = False, watch_high: [Optional](#)¹¹⁴⁴[[float](#)¹¹⁴⁵] = None, watch_high_exclusive: [bool](#)¹¹⁴⁶ = False, minimum_violations: [int](#)¹¹⁴⁷ = 1)

¹¹¹² <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

¹¹¹³ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹¹⁴ <https://docs.python.org/3/library/functions.html#int>

¹¹¹⁵ <https://docs.python.org/3/library/stdtypes.html#dict>

¹¹¹⁶ <https://docs.python.org/3/library/stdtypes.html#str>

3.9 Ancillary

3.9.1 AncillaryData

```
class yamcs.pyMDB.AncillaryData
    Bases: object1148

    __init__(items: Optional1149[Mapping1150[str1151, str1152]] = None) → None1153

    append(name: str1154, value: Optional1155[str1156] = None, *, url: Optional1157[str1158] = None,
           mimetype: Optional1159[str1160] = None)
```

3.9.2 AncillaryDataItem

```
class yamcs.pyMDB.AncillaryDataItem
    Bases: NamedTuple1161

    AncillaryDataItem(name, value, url, mimetype)

    Create new instance of AncillaryDataItem(name, value, url, mimetype)
```

```
1117 https://docs.python.org/3/library/typing.html#typing.Optional
1118 https://docs.python.org/3/library/functions.html#float
1119 https://docs.python.org/3/library/functions.html#bool
1120 https://docs.python.org/3/library/typing.html#typing.Optional
1121 https://docs.python.org/3/library/functions.html#float
1122 https://docs.python.org/3/library/functions.html#bool
1123 https://docs.python.org/3/library/typing.html#typing.Optional
1124 https://docs.python.org/3/library/functions.html#float
1125 https://docs.python.org/3/library/functions.html#bool
1126 https://docs.python.org/3/library/typing.html#typing.Optional
1127 https://docs.python.org/3/library/functions.html#float
1128 https://docs.python.org/3/library/functions.html#bool
1129 https://docs.python.org/3/library/typing.html#typing.Optional
1130 https://docs.python.org/3/library/functions.html#float
1131 https://docs.python.org/3/library/functions.html#bool
1132 https://docs.python.org/3/library/typing.html#typing.Optional
1133 https://docs.python.org/3/library/functions.html#float
1134 https://docs.python.org/3/library/functions.html#bool
1135 https://docs.python.org/3/library/typing.html#typing.Optional
1136 https://docs.python.org/3/library/functions.html#float
1137 https://docs.python.org/3/library/functions.html#bool
1138 https://docs.python.org/3/library/typing.html#typing.Optional
1139 https://docs.python.org/3/library/functions.html#float
1140 https://docs.python.org/3/library/functions.html#bool
1141 https://docs.python.org/3/library/typing.html#typing.Optional
1142 https://docs.python.org/3/library/functions.html#float
1143 https://docs.python.org/3/library/functions.html#bool
1144 https://docs.python.org/3/library/typing.html#typing.Optional
1145 https://docs.python.org/3/library/functions.html#float
1146 https://docs.python.org/3/library/functions.html#bool
1147 https://docs.python.org/3/library/functions.html#int
1148 https://docs.python.org/3/library/functions.html#object
1149 https://docs.python.org/3/library/typing.html#typing.Optional
1150 https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping
1151 https://docs.python.org/3/library/stdtypes.html#str
1152 https://docs.python.org/3/library/stdtypes.html#str
1153 https://docs.python.org/3/library/constants.html#None
1154 https://docs.python.org/3/library/stdtypes.html#str
1155 https://docs.python.org/3/library/typing.html#typing.Optional
1156 https://docs.python.org/3/library/stdtypes.html#str
1157 https://docs.python.org/3/library/typing.html#typing.Optional
1158 https://docs.python.org/3/library/stdtypes.html#str
1159 https://docs.python.org/3/library/typing.html#typing.Optional
1160 https://docs.python.org/3/library/stdtypes.html#str
```

static `__new__`(*_cls*, name: [str](#)¹¹⁶², value: [str](#)¹¹⁶³ | [None](#)¹¹⁶⁴, url: [Optional](#)¹¹⁶⁵[[str](#)¹¹⁶⁶] = [None](#),
mimetype: [Optional](#)¹¹⁶⁷[[str](#)¹¹⁶⁸] = [None](#))

Create new instance of AncillaryDataItem(name, value, url, mimetype)

count(*value*, /)

Return number of occurrences of value.

index(*value*, start=0, stop=9223372036854775807, /)

Return first index of value.

Raises ValueError if the value is not present.

mimetype: [str](#)¹¹⁶⁹ | [None](#)¹¹⁷⁰

Optional MIME type. If unspecified plain/text is assumed

name: [str](#)¹¹⁷¹

Name of the item

url: [str](#)¹¹⁷² | [None](#)¹¹⁷³

A URL, can be used as an alternative or in addition to a value

value: [str](#)¹¹⁷⁴ | [None](#)¹¹⁷⁵

A text value

3.10 Data Types

3.10.1 Epoch

class `yamcs.pymdb.Epoch`

Bases: [Enum](#)¹¹⁷⁶

An enumeration.

GPS = 1

J2000 = 2

TAI = 3

UNIX = 4

¹¹⁶¹ <https://docs.python.org/3/library/typing.html#typing.NamedTuple>

¹¹⁶² <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁶³ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁶⁴ <https://docs.python.org/3/library/constants.html#None>

¹¹⁶⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹¹⁶⁶ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁶⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹¹⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁷⁰ <https://docs.python.org/3/library/constants.html#None>

¹¹⁷¹ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁷² <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁷³ <https://docs.python.org/3/library/constants.html#None>

¹¹⁷⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁷⁵ <https://docs.python.org/3/library/constants.html#None>

¹¹⁷⁶ <https://docs.python.org/3/library/enum.html#enum.Enum>

3.10.2 DynamicInteger

`class yamcs.pyMDB.DynamicInteger`

Bases: `object`¹¹⁷⁷

`DynamicInteger(parameter: 'IntegerParameter | str')`

`__init__(parameter: IntegerParameter (page 19) | str1178) → None1179`

`parameter: IntegerParameter (page 19) | str1180`

Retrieve the value of this parameter.

The parameter may be specified as `str`, which is intended for referencing a parameter that is not managed with PyMDB.

3.10.3 DataType

`class yamcs.pyMDB.DataType`

Bases: `object`¹¹⁸¹

`__init__(short_description: Optional1182[str1183] = None, long_description: Optional1184[str1185] = None, extra: Optional1186[Mapping1187[str1188, str1189]] = None, units: Optional1190[str1191] = None, encoding: Optional1192[Encoding (page 55)] = None) → None1193`

`encoding: Encoding (page 55) | None1194`

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

`extra: dict1195[str1196, str1197]`

Arbitrary information, keyed by name

`long_description: str1198 | None1199`

Multiline description

`short_description: str1200 | None1201`

Online description

`units: str1202 | None1203`

Engineering units

¹¹⁷⁷ <https://docs.python.org/3/library/functions.html#object>

¹¹⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>

¹¹⁷⁹ <https://docs.python.org/3/library/constants.html#None>

¹¹⁸⁰ <https://docs.python.org/3/library/stdtypes.html#str>

3.10.4 AbsoluteTimeDataType

class `yamcs.pyddb.AbsoluteTimeDataType`

Bases: [DataType](#) (page 64)

__init__ (reference: [Epoch](#) (page 63) | [datetime](#) | [AbsoluteTimeParameter](#) (page 14),
short_description: [str](#)¹²⁰⁴ | [None](#)¹²⁰⁵ = *None*, *long_description*: [str](#)¹²⁰⁶ | [None](#)¹²⁰⁷ = *None*,
extra: [Mapping](#)[[str](#)¹²⁰⁸, [str](#)¹²⁰⁹] | [None](#)¹²¹⁰ = *None*, *units*: [str](#)¹²¹¹ | [None](#)¹²¹² = *None*,
encoding: [TimeEncoding](#) | [None](#)¹²¹³ = *None*) → [None](#)¹²¹⁴

encoding: [Encoding](#) (page 55) | [None](#)¹²¹⁵

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹²¹⁶[[str](#)¹²¹⁷, [str](#)¹²¹⁸]

Arbitrary information, keyed by name

long_description: [str](#)¹²¹⁹ | [None](#)¹²²⁰

Multiline description

short_description: [str](#)¹²²¹ | [None](#)¹²²²

Online description

units: [str](#)¹²²³ | [None](#)¹²²⁴

Engineering units

1181 <https://docs.python.org/3/library/functions.html#object>
1182 <https://docs.python.org/3/library/typing.html#typing.Optional>
1183 <https://docs.python.org/3/library/stdtypes.html#str>
1184 <https://docs.python.org/3/library/typing.html#typing.Optional>
1185 <https://docs.python.org/3/library/stdtypes.html#str>
1186 <https://docs.python.org/3/library/typing.html#typing.Optional>
1187 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
1188 <https://docs.python.org/3/library/stdtypes.html#str>
1189 <https://docs.python.org/3/library/stdtypes.html#str>
1190 <https://docs.python.org/3/library/typing.html#typing.Optional>
1191 <https://docs.python.org/3/library/stdtypes.html#str>
1192 <https://docs.python.org/3/library/typing.html#typing.Optional>
1193 <https://docs.python.org/3/library/constants.html#None>
1194 <https://docs.python.org/3/library/constants.html#None>
1195 <https://docs.python.org/3/library/stdtypes.html#dict>
1196 <https://docs.python.org/3/library/stdtypes.html#str>
1197 <https://docs.python.org/3/library/stdtypes.html#str>
1198 <https://docs.python.org/3/library/stdtypes.html#str>
1199 <https://docs.python.org/3/library/constants.html#None>
1200 <https://docs.python.org/3/library/stdtypes.html#str>
1201 <https://docs.python.org/3/library/constants.html#None>
1202 <https://docs.python.org/3/library/stdtypes.html#str>
1203 <https://docs.python.org/3/library/constants.html#None>

3.10.5 AggregateDataType

class yamcs.pyMDB.AggregateDataType

Bases: [DataType](#) (page 64)

__init__(members: [Sequence](#)¹²²⁵ [[Member](#) (page 74)], short_description: [Optional](#)¹²²⁶ [[str](#)¹²²⁷] = None, long_description: [Optional](#)¹²²⁸ [[str](#)¹²²⁹] = None, extra: [Optional](#)¹²³⁰ [[Mapping](#)¹²³¹ [[str](#)¹²³², [str](#)¹²³³]] = None, units: [Optional](#)¹²³⁴ [[str](#)¹²³⁵] = None, encoding: [Optional](#)¹²³⁶ [[Encoding](#) (page 55)] = None) → [None](#)¹²³⁷

encoding: [Encoding](#) (page 55) | [None](#)¹²³⁸

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹²³⁹ [[str](#)¹²⁴⁰, [str](#)¹²⁴¹]

Arbitrary information, keyed by name

find_member(name: [str](#)¹²⁴²) → [Member](#) (page 74)

long_description: [str](#)¹²⁴³ | [None](#)¹²⁴⁴

Multiline description

short_description: [str](#)¹²⁴⁵ | [None](#)¹²⁴⁶

Online description

units: [str](#)¹²⁴⁷ | [None](#)¹²⁴⁸

Engineering units

¹²⁰⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁰⁵ <https://docs.python.org/3/library/constants.html#None>
¹²⁰⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁰⁷ <https://docs.python.org/3/library/constants.html#None>
¹²⁰⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²¹⁰ <https://docs.python.org/3/library/constants.html#None>
¹²¹¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²¹² <https://docs.python.org/3/library/constants.html#None>
¹²¹³ <https://docs.python.org/3/library/constants.html#None>
¹²¹⁴ <https://docs.python.org/3/library/constants.html#None>
¹²¹⁵ <https://docs.python.org/3/library/constants.html#None>
¹²¹⁶ <https://docs.python.org/3/library/stdtypes.html#dict>
¹²¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹²¹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹²¹⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²²⁰ <https://docs.python.org/3/library/constants.html#None>
¹²²¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²²² <https://docs.python.org/3/library/constants.html#None>
¹²²³ <https://docs.python.org/3/library/stdtypes.html#str>
¹²²⁴ <https://docs.python.org/3/library/constants.html#None>

3.10.6 ArrayDataType

class `yamcs.pyMDB.ArrayDataType`

Bases: [DataType](#) (page 64)

`__init__`(`data_type`: [DataType](#) (page 64), `length`: [int](#)¹²⁴⁹ | [DynamicInteger](#) (page 64),
`short_description`: [Optional](#)¹²⁵⁰[[str](#)¹²⁵¹] = `None`, `long_description`: [Optional](#)¹²⁵²[[str](#)¹²⁵³] =
`None`, `extra`: [Optional](#)¹²⁵⁴[[Mapping](#)¹²⁵⁵[[str](#)¹²⁵⁶, [str](#)¹²⁵⁷]] = `None`, `encoding`:
[Optional](#)¹²⁵⁸[[Encoding](#) (page 55)] = `None`) → [None](#)¹²⁵⁹

`encoding`: [Encoding](#) (page 55) | [None](#)¹²⁶⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

`extra`: [dict](#)¹²⁶¹[[str](#)¹²⁶², [str](#)¹²⁶³]

Arbitrary information, keyed by name

`long_description`: [str](#)¹²⁶⁴ | [None](#)¹²⁶⁵

Multiline description

`short_description`: [str](#)¹²⁶⁶ | [None](#)¹²⁶⁷

Online description

`units`: [str](#)¹²⁶⁸ | [None](#)¹²⁶⁹

Engineering units

¹²²⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

¹²²⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹²²⁷ <https://docs.python.org/3/library/stdtypes.html#str>

¹²²⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹²²⁹ <https://docs.python.org/3/library/stdtypes.html#str>

¹²³⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹²³¹ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

¹²³² <https://docs.python.org/3/library/stdtypes.html#str>

¹²³³ <https://docs.python.org/3/library/stdtypes.html#str>

¹²³⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹²³⁵ <https://docs.python.org/3/library/stdtypes.html#str>

¹²³⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹²³⁷ <https://docs.python.org/3/library/constants.html#None>

¹²³⁸ <https://docs.python.org/3/library/constants.html#None>

¹²³⁹ <https://docs.python.org/3/library/stdtypes.html#dict>

¹²⁴⁰ <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴² <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴³ <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴⁴ <https://docs.python.org/3/library/constants.html#None>

¹²⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴⁶ <https://docs.python.org/3/library/constants.html#None>

¹²⁴⁷ <https://docs.python.org/3/library/stdtypes.html#str>

¹²⁴⁸ <https://docs.python.org/3/library/constants.html#None>

3.10.7 BinaryDataType

class `yamcs.pyddb.BinaryDataType`

Bases: [DataType](#) (page 64)

__init__ (*min_length*: [Optional](#)¹²⁷⁰ [[int](#)¹²⁷¹] = *None*, *max_length*: [Optional](#)¹²⁷² [[int](#)¹²⁷³] = *None*, *short_description*: [Optional](#)¹²⁷⁴ [[str](#)¹²⁷⁵] = *None*, *long_description*: [Optional](#)¹²⁷⁶ [[str](#)¹²⁷⁷] = *None*, *extra*: [Optional](#)¹²⁷⁸ [[Mapping](#)¹²⁷⁹ [[str](#)¹²⁸⁰, [str](#)¹²⁸¹]] = *None*, *units*: [Optional](#)¹²⁸² [[str](#)¹²⁸³] = *None*, *encoding*: [Optional](#)¹²⁸⁴ [[Encoding](#) (page 55)] = *None*) → [None](#)¹²⁸⁵

encoding: [Encoding](#) (page 55) | [None](#)¹²⁸⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹²⁸⁷ [[str](#)¹²⁸⁸, [str](#)¹²⁸⁹]

Arbitrary information, keyed by name

long_description: [str](#)¹²⁹⁰ | [None](#)¹²⁹¹

Multiline description

max_length: [int](#)¹²⁹² | [None](#)¹²⁹³

Maximum length in bytes

min_length: [int](#)¹²⁹⁴ | [None](#)¹²⁹⁵

Minimum length in bytes

short_description: [str](#)¹²⁹⁶ | [None](#)¹²⁹⁷

Online description

units: [str](#)¹²⁹⁸ | [None](#)¹²⁹⁹

Engineering units

¹²⁴⁹ <https://docs.python.org/3/library/functions.html#int>
¹²⁵⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹²⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁵² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹²⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁵⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹²⁵⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹²⁵⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁵⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁵⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹²⁵⁹ <https://docs.python.org/3/library/constants.html#None>
¹²⁶⁰ <https://docs.python.org/3/library/constants.html#None>
¹²⁶¹ <https://docs.python.org/3/library/stdtypes.html#dict>
¹²⁶² <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁶³ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁶⁵ <https://docs.python.org/3/library/constants.html#None>
¹²⁶⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁶⁷ <https://docs.python.org/3/library/constants.html#None>
¹²⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹²⁶⁹ <https://docs.python.org/3/library/constants.html#None>

3.10.8 BooleanDataType

`class yamcs.pyddb.BooleanDataType`

Bases: [DataType](#) (page 64)

`__init__`(zero_string_value: [str](#)¹³⁰⁰ = 'False', one_string_value: [str](#)¹³⁰¹ = 'True', short_description: [Optional](#)¹³⁰²[[str](#)¹³⁰³] = None, long_description: [Optional](#)¹³⁰⁴[[str](#)¹³⁰⁵] = None, extra: [Optional](#)¹³⁰⁶[[Mapping](#)¹³⁰⁷[[str](#)¹³⁰⁸, [str](#)¹³⁰⁹]] = None, units: [Optional](#)¹³¹⁰[[str](#)¹³¹¹] = None, encoding: [Optional](#)¹³¹²[[Encoding](#) (page 55)] = None) → [None](#)¹³¹³

encoding: [Encoding](#) (page 55) | [None](#)¹³¹⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹³¹⁵[[str](#)¹³¹⁶, [str](#)¹³¹⁷]

Arbitrary information, keyed by name

long_description: [str](#)¹³¹⁸ | [None](#)¹³¹⁹

Multiline description

short_description: [str](#)¹³²⁰ | [None](#)¹³²¹

Online description

units: [str](#)¹³²² | [None](#)¹³²³

Engineering units

1270 <https://docs.python.org/3/library/typing.html#typing.Optional>
1271 <https://docs.python.org/3/library/functions.html#int>
1272 <https://docs.python.org/3/library/typing.html#typing.Optional>
1273 <https://docs.python.org/3/library/functions.html#int>
1274 <https://docs.python.org/3/library/typing.html#typing.Optional>
1275 <https://docs.python.org/3/library/stdtypes.html#str>
1276 <https://docs.python.org/3/library/typing.html#typing.Optional>
1277 <https://docs.python.org/3/library/stdtypes.html#str>
1278 <https://docs.python.org/3/library/typing.html#typing.Optional>
1279 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
1280 <https://docs.python.org/3/library/stdtypes.html#str>
1281 <https://docs.python.org/3/library/stdtypes.html#str>
1282 <https://docs.python.org/3/library/typing.html#typing.Optional>
1283 <https://docs.python.org/3/library/stdtypes.html#str>
1284 <https://docs.python.org/3/library/typing.html#typing.Optional>
1285 <https://docs.python.org/3/library/constants.html#None>
1286 <https://docs.python.org/3/library/constants.html#None>
1287 <https://docs.python.org/3/library/stdtypes.html#dict>
1288 <https://docs.python.org/3/library/stdtypes.html#str>
1289 <https://docs.python.org/3/library/stdtypes.html#str>
1290 <https://docs.python.org/3/library/stdtypes.html#str>
1291 <https://docs.python.org/3/library/constants.html#None>
1292 <https://docs.python.org/3/library/functions.html#int>
1293 <https://docs.python.org/3/library/constants.html#None>
1294 <https://docs.python.org/3/library/functions.html#int>
1295 <https://docs.python.org/3/library/constants.html#None>
1296 <https://docs.python.org/3/library/stdtypes.html#str>
1297 <https://docs.python.org/3/library/constants.html#None>
1298 <https://docs.python.org/3/library/stdtypes.html#str>
1299 <https://docs.python.org/3/library/constants.html#None>

3.10.9 EnumeratedDataType

class `yamcs.pyddb.EnumeratedDataType`

Bases: [DataType](#) (page 64)

__init__(choices: [Sequence](#)¹³²⁴ [[tuple](#)¹³²⁵ [[int](#)¹³²⁶, [str](#)¹³²⁷] | [tuple](#)¹³²⁸ [[int](#)¹³²⁹, [str](#)¹³³⁰, [str](#)¹³³¹]] | [type](#)¹³³² [[Enum](#)¹³³³], short_description: [Optional](#)¹³³⁴ [[str](#)¹³³⁵] = None, long_description: [Optional](#)¹³³⁶ [[str](#)¹³³⁷] = None, extra: [Optional](#)¹³³⁸ [[Mapping](#)¹³³⁹ [[str](#)¹³⁴⁰, [str](#)¹³⁴¹]] = None, units: [Optional](#)¹³⁴² [[str](#)¹³⁴³] = None, encoding: [Optional](#)¹³⁴⁴ [[Encoding](#) (page 55)] = None) → None¹³⁴⁵

encoding: [Encoding](#) (page 55) | None¹³⁴⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹³⁴⁷ [[str](#)¹³⁴⁸, [str](#)¹³⁴⁹]

Arbitrary information, keyed by name

label_for(value: [int](#)¹³⁵⁰)

long_description: [str](#)¹³⁵¹ | None¹³⁵²

Multiline description

short_description: [str](#)¹³⁵³ | None¹³⁵⁴

Online description

units: [str](#)¹³⁵⁵ | None¹³⁵⁶

Engineering units

¹³⁰⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁰² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁰⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³⁰⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁰⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³⁰⁷ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹³⁰⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³¹¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³¹³ <https://docs.python.org/3/library/constants.html#None>
¹³¹⁴ <https://docs.python.org/3/library/constants.html#None>
¹³¹⁵ <https://docs.python.org/3/library/stdtypes.html#dict>
¹³¹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³¹⁹ <https://docs.python.org/3/library/constants.html#None>
¹³²⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³²¹ <https://docs.python.org/3/library/constants.html#None>
¹³²² <https://docs.python.org/3/library/stdtypes.html#str>
¹³²³ <https://docs.python.org/3/library/constants.html#None>

3.10.10 FloatDataType

class yamcs.pyMDB.FloatDataType

Bases: [DataType](#) (page 64)

__init__ (*bits*: [Literal](#)[32, 64] = 32, *minimum*: [float](#)¹³⁵⁷ | [None](#)¹³⁵⁸ = None, *minimum_inclusive*: [bool](#)¹³⁵⁹ = True, *maximum*: [float](#)¹³⁶⁰ | [None](#)¹³⁶¹ = None, *maximum_inclusive*: [bool](#)¹³⁶² = True, *short_description*: [str](#)¹³⁶³ | [None](#)¹³⁶⁴ = None, *long_description*: [str](#)¹³⁶⁵ | [None](#)¹³⁶⁶ = None, *extra*: [Mapping](#)[[str](#)¹³⁶⁷, [str](#)¹³⁶⁸] | [None](#)¹³⁶⁹ = None, *units*: [str](#)¹³⁷⁰ | [None](#)¹³⁷¹ = None, *encoding*: [Encoding](#) (page 55) | [None](#)¹³⁷² = None, *calibrator*: [Calibrator](#) (page 59) | [None](#)¹³⁷³ = None) → [None](#)¹³⁷⁴

calibrator: [Calibrator](#) (page 59) | [None](#)¹³⁷⁵

Describes how a raw value is transformed to an engineering value

encoding: [Encoding](#) (page 55) | [None](#)¹³⁷⁶

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹³⁷⁷[[str](#)¹³⁷⁸, [str](#)¹³⁷⁹]

Arbitrary information, keyed by name

long_description: [str](#)¹³⁸⁰ | [None](#)¹³⁸¹

Multiline description

maximum: [float](#)¹³⁸² | [None](#)¹³⁸³

Maximum valid engineering value (inclusive)

maximum_inclusive: [bool](#)¹³⁸⁴

Whether the maximum value itself is valid

minimum: [float](#)¹³⁸⁵ | [None](#)¹³⁸⁶

Minimum valid engineering value

¹³²⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>
¹³²⁵ <https://docs.python.org/3/library/stdtypes.html#tuple>
¹³²⁶ <https://docs.python.org/3/library/functions.html#int>
¹³²⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹³²⁸ <https://docs.python.org/3/library/stdtypes.html#tuple>
¹³²⁹ <https://docs.python.org/3/library/functions.html#int>
¹³³⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³³¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³³² <https://docs.python.org/3/library/functions.html#type>
¹³³³ <https://docs.python.org/3/library/enum.html#enum.Enum>
¹³³⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³³⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹³³⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³³⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹³³⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³³⁹ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹³⁴⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁴¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁴² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³⁴³ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁴⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹³⁴⁵ <https://docs.python.org/3/library/constants.html#None>
¹³⁴⁶ <https://docs.python.org/3/library/constants.html#None>
¹³⁴⁷ <https://docs.python.org/3/library/stdtypes.html#dict>
¹³⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁴⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁵⁰ <https://docs.python.org/3/library/functions.html#int>
¹³⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁵² <https://docs.python.org/3/library/constants.html#None>
¹³⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁵⁴ <https://docs.python.org/3/library/constants.html#None>
¹³⁵⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁵⁶ <https://docs.python.org/3/library/constants.html#None>

minimum_inclusive: [bool](#)¹³⁸⁷
Whether the minimum value itself is valid

short_description: [str](#)¹³⁸⁸ | [None](#)¹³⁸⁹
Online description

units: [str](#)¹³⁹⁰ | [None](#)¹³⁹¹
Engineering units

3.10.11 IntegerDataType

class `yamcs.pyMDB.IntegerDataType`

Bases: [DataType](#) (page 64)

__init__(*signed*: [bool](#)¹³⁹² = True, *bits*: [int](#)¹³⁹³ = 32, *minimum*: [int](#)¹³⁹⁴ | [None](#)¹³⁹⁵ = None, *maximum*: [int](#)¹³⁹⁶ | [None](#)¹³⁹⁷ = None, *short_description*: [str](#)¹³⁹⁸ | [None](#)¹³⁹⁹ = None, *long_description*: [str](#)¹⁴⁰⁰ | [None](#)¹⁴⁰¹ = None, *extra*: Mapping[[str](#)¹⁴⁰², [str](#)¹⁴⁰³] | [None](#)¹⁴⁰⁴ = None, *units*: [str](#)¹⁴⁰⁵ | [None](#)¹⁴⁰⁶ = None, *encoding*: [Encoding](#) (page 55) | [None](#)¹⁴⁰⁷ = None, *calibrator*: [Calibrator](#) (page 59) | [None](#)¹⁴⁰⁸ = None) → [None](#)¹⁴⁰⁹

calibrator: [Calibrator](#) (page 59) | [None](#)¹⁴¹⁰

Describes how a raw value is transformed to an engineering value

encoding: [Encoding](#) (page 55) | [None](#)¹⁴¹¹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁴¹²[[str](#)¹⁴¹³, [str](#)¹⁴¹⁴]

Arbitrary information, keyed by name

¹³⁵⁷ <https://docs.python.org/3/library/functions.html#float>
¹³⁵⁸ <https://docs.python.org/3/library/constants.html#None>
¹³⁵⁹ <https://docs.python.org/3/library/functions.html#bool>
¹³⁶⁰ <https://docs.python.org/3/library/functions.html#float>
¹³⁶¹ <https://docs.python.org/3/library/constants.html#None>
¹³⁶² <https://docs.python.org/3/library/functions.html#bool>
¹³⁶³ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁶⁴ <https://docs.python.org/3/library/constants.html#None>
¹³⁶⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁶⁶ <https://docs.python.org/3/library/constants.html#None>
¹³⁶⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁶⁹ <https://docs.python.org/3/library/constants.html#None>
¹³⁷⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁷¹ <https://docs.python.org/3/library/constants.html#None>
¹³⁷² <https://docs.python.org/3/library/constants.html#None>
¹³⁷³ <https://docs.python.org/3/library/constants.html#None>
¹³⁷⁴ <https://docs.python.org/3/library/constants.html#None>
¹³⁷⁵ <https://docs.python.org/3/library/constants.html#None>
¹³⁷⁶ <https://docs.python.org/3/library/constants.html#None>
¹³⁷⁷ <https://docs.python.org/3/library/stdtypes.html#dict>
¹³⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁷⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁸⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁸¹ <https://docs.python.org/3/library/constants.html#None>
¹³⁸² <https://docs.python.org/3/library/functions.html#float>
¹³⁸³ <https://docs.python.org/3/library/constants.html#None>
¹³⁸⁴ <https://docs.python.org/3/library/functions.html#bool>
¹³⁸⁵ <https://docs.python.org/3/library/functions.html#float>
¹³⁸⁶ <https://docs.python.org/3/library/constants.html#None>
¹³⁸⁷ <https://docs.python.org/3/library/functions.html#bool>
¹³⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁸⁹ <https://docs.python.org/3/library/constants.html#None>
¹³⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹³⁹¹ <https://docs.python.org/3/library/constants.html#None>

long_description: `str`¹⁴¹⁵ | `None`¹⁴¹⁶
 Multiline description

maximum: `int`¹⁴¹⁷ | `None`¹⁴¹⁸
 Maximum valid engineering value (inclusive)

minimum: `int`¹⁴¹⁹ | `None`¹⁴²⁰
 Minimum valid engineering value (inclusive)

short_description: `str`¹⁴²¹ | `None`¹⁴²²
 Online description

units: `str`¹⁴²³ | `None`¹⁴²⁴
 Engineering units

3.10.12 StringDataType

class `yamcs.pyMDB.StringDataType`

Bases: `DataType` (page 64)

__init__(*min_length*: `Optional`¹⁴²⁵[`int`¹⁴²⁶] = `None`, *max_length*: `Optional`¹⁴²⁷[`int`¹⁴²⁸] = `None`,
short_description: `Optional`¹⁴²⁹[`str`¹⁴³⁰] = `None`, *long_description*: `Optional`¹⁴³¹[`str`¹⁴³²] =
`None`, *extra*: `Optional`¹⁴³³[`Mapping`¹⁴³⁴[`str`¹⁴³⁵, `str`¹⁴³⁶]] = `None`, *units*: `Optional`¹⁴³⁷[`str`¹⁴³⁸] =
`None`, *encoding*: `Optional`¹⁴³⁹[`Encoding` (page 55)] = `None`) → `None`¹⁴⁴⁰

encoding: `Encoding` (page 55) | `None`¹⁴⁴¹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: `dict`¹⁴⁴²[`str`¹⁴⁴³, `str`¹⁴⁴⁴]

Arbitrary information, keyed by name

1392 <https://docs.python.org/3/library/functions.html#bool>
 1393 <https://docs.python.org/3/library/functions.html#int>
 1394 <https://docs.python.org/3/library/functions.html#int>
 1395 <https://docs.python.org/3/library/constants.html#None>
 1396 <https://docs.python.org/3/library/functions.html#int>
 1397 <https://docs.python.org/3/library/constants.html#None>
 1398 <https://docs.python.org/3/library/stdtypes.html#str>
 1399 <https://docs.python.org/3/library/constants.html#None>
 1400 <https://docs.python.org/3/library/stdtypes.html#str>
 1401 <https://docs.python.org/3/library/constants.html#None>
 1402 <https://docs.python.org/3/library/stdtypes.html#str>
 1403 <https://docs.python.org/3/library/stdtypes.html#str>
 1404 <https://docs.python.org/3/library/constants.html#None>
 1405 <https://docs.python.org/3/library/stdtypes.html#str>
 1406 <https://docs.python.org/3/library/constants.html#None>
 1407 <https://docs.python.org/3/library/constants.html#None>
 1408 <https://docs.python.org/3/library/constants.html#None>
 1409 <https://docs.python.org/3/library/constants.html#None>
 1410 <https://docs.python.org/3/library/constants.html#None>
 1411 <https://docs.python.org/3/library/constants.html#None>
 1412 <https://docs.python.org/3/library/stdtypes.html#dict>
 1413 <https://docs.python.org/3/library/stdtypes.html#str>
 1414 <https://docs.python.org/3/library/stdtypes.html#str>
 1415 <https://docs.python.org/3/library/stdtypes.html#str>
 1416 <https://docs.python.org/3/library/constants.html#None>
 1417 <https://docs.python.org/3/library/functions.html#int>
 1418 <https://docs.python.org/3/library/constants.html#None>
 1419 <https://docs.python.org/3/library/functions.html#int>
 1420 <https://docs.python.org/3/library/constants.html#None>
 1421 <https://docs.python.org/3/library/stdtypes.html#str>
 1422 <https://docs.python.org/3/library/constants.html#None>
 1423 <https://docs.python.org/3/library/stdtypes.html#str>
 1424 <https://docs.python.org/3/library/constants.html#None>

long_description: [str](#)¹⁴⁴⁵ | [None](#)¹⁴⁴⁶
 Multiline description

max_length: [int](#)¹⁴⁴⁷ | [None](#)¹⁴⁴⁸
 Maximum length in characters

min_length: [int](#)¹⁴⁴⁹ | [None](#)¹⁴⁵⁰
 Minimum length in characters

short_description: [str](#)¹⁴⁵¹ | [None](#)¹⁴⁵²
 Online description

units: [str](#)¹⁴⁵³ | [None](#)¹⁴⁵⁴
 Engineering units

3.10.13 Member

class `yamcs.pyMDB.Member`

Bases: [DataType](#) (page 64)

__init__(*name:* [str](#)¹⁴⁵⁵, *initial_value:* [Optional](#)¹⁴⁵⁶[[Any](#)¹⁴⁵⁷] = [None](#), *short_description:* [Optional](#)¹⁴⁵⁸[[str](#)¹⁴⁵⁹] = [None](#), *long_description:* [Optional](#)¹⁴⁶⁰[[str](#)¹⁴⁶¹] = [None](#), *extra:* [Optional](#)¹⁴⁶²[[Mapping](#)¹⁴⁶³[[str](#)¹⁴⁶⁴, [str](#)¹⁴⁶⁵]] = [None](#), *units:* [Optional](#)¹⁴⁶⁶[[str](#)¹⁴⁶⁷] = [None](#), *encoding:* [Optional](#)¹⁴⁶⁸[[Encoding](#) (page 55)] = [None](#)) → [None](#)¹⁴⁶⁹

encoding: [Encoding](#) (page 55) | [None](#)¹⁴⁷⁰

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁴⁷¹[[str](#)¹⁴⁷², [str](#)¹⁴⁷³]

Arbitrary information, keyed by name

initial_value: [Any](#)¹⁴⁷⁴

Initial value

¹⁴²⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴²⁶ <https://docs.python.org/3/library/functions.html#int>
¹⁴²⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴²⁸ <https://docs.python.org/3/library/functions.html#int>
¹⁴²⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴³⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴³² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴³⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹⁴³⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴³⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴³⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁴⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁴¹ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁴² <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁴⁴³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁴⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁴⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁴⁷ <https://docs.python.org/3/library/functions.html#int>
¹⁴⁴⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁴⁹ <https://docs.python.org/3/library/functions.html#int>
¹⁴⁵⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁵¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁵² <https://docs.python.org/3/library/constants.html#None>
¹⁴⁵³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁵⁴ <https://docs.python.org/3/library/constants.html#None>

long_description: [str](#)¹⁴⁷⁵ | [None](#)¹⁴⁷⁶
 Multiline description

name: [str](#)¹⁴⁷⁷
 Member name

short_description: [str](#)¹⁴⁷⁸ | [None](#)¹⁴⁷⁹
 Online description

units: [str](#)¹⁴⁸⁰ | [None](#)¹⁴⁸¹
 Engineering units

3.10.14 AbsoluteTimeMember

class `yamcs.pyddb.AbsoluteTimeMember`

Bases: [Member](#) (page 74), [AbsoluteTimeDataType](#) (page 65)

__init__(*name:* [str](#)¹⁴⁸², *reference:* [Epoch](#) (page 63) | *datetime* | [AbsoluteTimeParameter](#) (page 14), *initial_value:* *Any* = *None*, *short_description:* [str](#)¹⁴⁸³ | [None](#)¹⁴⁸⁴ = *None*, *long_description:* [str](#)¹⁴⁸⁵ | [None](#)¹⁴⁸⁶ = *None*, *extra:* *Mapping*[[str](#)¹⁴⁸⁷, [str](#)¹⁴⁸⁸] | [None](#)¹⁴⁸⁹ = *None*, *units:* [str](#)¹⁴⁹⁰ | [None](#)¹⁴⁹¹ = *None*, *encoding:* *TimeEncoding* | [None](#)¹⁴⁹² = *None*) → [None](#)¹⁴⁹³

encoding: [Encoding](#) (page 55) | [None](#)¹⁴⁹⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁴⁹⁵[[str](#)¹⁴⁹⁶, [str](#)¹⁴⁹⁷]

Arbitrary information, keyed by name

initial_value: *Any*

Initial value

long_description: [str](#)¹⁴⁹⁸ | [None](#)¹⁴⁹⁹

Multiline description

name: [str](#)¹⁵⁰⁰

Member name

¹⁴⁵⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁵⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁵⁷ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁴⁵⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁵⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁶⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁶¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁶² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁶³ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹⁴⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁶⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁶⁶ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁶⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁶⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁴⁶⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁷⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁷¹ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁴⁷² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷⁴ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁴⁷⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁷⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁷⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁸⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸¹ <https://docs.python.org/3/library/constants.html#None>

reference: [Epoch](#) (page 63) | [datetime](#) | [AbsoluteTimeParameter](#) (page 14)

short_description: [str](#)¹⁵⁰¹ | [None](#)¹⁵⁰²

Online description

units: [str](#)¹⁵⁰³ | [None](#)¹⁵⁰⁴

Engineering units

3.10.15 AggregateMember

class `yamcs.pyddb.AggregateMember`

Bases: [Member](#) (page 74), [AggregateDataType](#) (page 66)

`__init__`(*name*: [str](#)¹⁵⁰⁵, *members*: [Sequence](#)¹⁵⁰⁶ [[Member](#) (page 74)], *initial_value*: [Optional](#)¹⁵⁰⁷ [[Any](#)¹⁵⁰⁸] = [None](#), *short_description*: [Optional](#)¹⁵⁰⁹ [[str](#)¹⁵¹⁰] = [None](#), *long_description*: [Optional](#)¹⁵¹¹ [[str](#)¹⁵¹²] = [None](#), *extra*: [Optional](#)¹⁵¹³ [[Mapping](#)¹⁵¹⁴ [[str](#)¹⁵¹⁵, [str](#)¹⁵¹⁶]] = [None](#), *encoding*: [Optional](#)¹⁵¹⁷ [[Encoding](#) (page 55)] = [None](#)) → [None](#)¹⁵¹⁸

encoding: [Encoding](#) (page 55) | [None](#)¹⁵¹⁹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁵²⁰ [[str](#)¹⁵²¹, [str](#)¹⁵²²]

Arbitrary information, keyed by name

find_member(*name*: [str](#)¹⁵²³) → [Member](#) (page 74)

initial_value: [Any](#)¹⁵²⁴

Initial value

long_description: [str](#)¹⁵²⁵ | [None](#)¹⁵²⁶

Multiline description

members: [list](#)¹⁵²⁷ [[Member](#) (page 74)]

name: [str](#)¹⁵²⁸

Member name

short_description: [str](#)¹⁵²⁹ | [None](#)¹⁵³⁰

Online description

¹⁴⁸² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁸⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁸⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁸⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁹¹ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁹² <https://docs.python.org/3/library/constants.html#None>
¹⁴⁹³ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁹⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁴⁹⁵ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁴⁹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁹⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁴⁹⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁰⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁰² <https://docs.python.org/3/library/constants.html#None>
¹⁵⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁰⁴ <https://docs.python.org/3/library/constants.html#None>

units: [str](#)¹⁵³¹ | [None](#)¹⁵³²

Engineering units

3.10.16 ArrayMember

class `yamcs.pyMDB.ArrayMember`

Bases: [Member](#) (page 74), [ArrayDataType](#) (page 67)

__init__(*name*: [str](#)¹⁵³³, *data_type*: [DataType](#) (page 64), *length*: [int](#)¹⁵³⁴, *initial_value*: [Optional](#)¹⁵³⁵[[Any](#)¹⁵³⁶] = [None](#), *short_description*: [Optional](#)¹⁵³⁷[[str](#)¹⁵³⁸] = [None](#), *long_description*: [Optional](#)¹⁵³⁹[[str](#)¹⁵⁴⁰] = [None](#), *extra*: [Optional](#)¹⁵⁴¹[[Mapping](#)¹⁵⁴²[[str](#)¹⁵⁴³, [str](#)¹⁵⁴⁴]] = [None](#), *encoding*: [Optional](#)¹⁵⁴⁵[[Encoding](#) (page 55)] = [None](#)) → [None](#)¹⁵⁴⁶

data_type: [DataType](#) (page 64)

encoding: [Encoding](#) (page 55) | [None](#)¹⁵⁴⁷

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁵⁴⁸[[str](#)¹⁵⁴⁹, [str](#)¹⁵⁵⁰]

Arbitrary information, keyed by name

initial_value: [Any](#)¹⁵⁵¹

Initial value

length: [int](#)¹⁵⁵² | [DynamicInteger](#) (page 64)

long_description: [str](#)¹⁵⁵³ | [None](#)¹⁵⁵⁴

Multiline description

name: [str](#)¹⁵⁵⁵

Member name

short_description: [str](#)¹⁵⁵⁶ | [None](#)¹⁵⁵⁷

Online description

1505 <https://docs.python.org/3/library/stdtypes.html#str>
1506 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>
1507 <https://docs.python.org/3/library/typing.html#typing.Optional>
1508 <https://docs.python.org/3/library/typing.html#typing.Any>
1509 <https://docs.python.org/3/library/typing.html#typing.Optional>
1510 <https://docs.python.org/3/library/stdtypes.html#str>
1511 <https://docs.python.org/3/library/typing.html#typing.Optional>
1512 <https://docs.python.org/3/library/stdtypes.html#str>
1513 <https://docs.python.org/3/library/typing.html#typing.Optional>
1514 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
1515 <https://docs.python.org/3/library/stdtypes.html#str>
1516 <https://docs.python.org/3/library/stdtypes.html#str>
1517 <https://docs.python.org/3/library/typing.html#typing.Optional>
1518 <https://docs.python.org/3/library/constants.html#None>
1519 <https://docs.python.org/3/library/constants.html#None>
1520 <https://docs.python.org/3/library/stdtypes.html#dict>
1521 <https://docs.python.org/3/library/stdtypes.html#str>
1522 <https://docs.python.org/3/library/stdtypes.html#str>
1523 <https://docs.python.org/3/library/stdtypes.html#str>
1524 <https://docs.python.org/3/library/typing.html#typing.Any>
1525 <https://docs.python.org/3/library/stdtypes.html#str>
1526 <https://docs.python.org/3/library/constants.html#None>
1527 <https://docs.python.org/3/library/stdtypes.html#list>
1528 <https://docs.python.org/3/library/stdtypes.html#str>
1529 <https://docs.python.org/3/library/stdtypes.html#str>
1530 <https://docs.python.org/3/library/constants.html#None>
1531 <https://docs.python.org/3/library/stdtypes.html#str>
1532 <https://docs.python.org/3/library/constants.html#None>

units: [str](#)¹⁵⁵⁸ | [None](#)¹⁵⁵⁹

Engineering units

3.10.17 BinaryMember

class yamcs.pyMDB.BinaryMember

Bases: [Member](#) (page 74), [BinaryDataType](#) (page 68)

__init__(*name*: [str](#)¹⁵⁶⁰, *min_length*: [Optional](#)¹⁵⁶¹[[int](#)¹⁵⁶²] = [None](#), *max_length*: [Optional](#)¹⁵⁶³[[int](#)¹⁵⁶⁴] = [None](#), *initial_value*: [Optional](#)¹⁵⁶⁵[[Any](#)¹⁵⁶⁶] = [None](#), *short_description*: [Optional](#)¹⁵⁶⁷[[str](#)¹⁵⁶⁸] = [None](#), *long_description*: [Optional](#)¹⁵⁶⁹[[str](#)¹⁵⁷⁰] = [None](#), *extra*: [Optional](#)¹⁵⁷¹[[Mapping](#)¹⁵⁷²[[str](#)¹⁵⁷³, [str](#)¹⁵⁷⁴]] = [None](#), *units*: [Optional](#)¹⁵⁷⁵[[str](#)¹⁵⁷⁶] = [None](#), *encoding*: [Optional](#)¹⁵⁷⁷[[Encoding](#) (page 55)] = [None](#)) → [None](#)¹⁵⁷⁸

encoding: [Encoding](#) (page 55) | [None](#)¹⁵⁷⁹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁵⁸⁰[[str](#)¹⁵⁸¹, [str](#)¹⁵⁸²]

Arbitrary information, keyed by name

initial_value: [Any](#)¹⁵⁸³

Initial value

long_description: [str](#)¹⁵⁸⁴ | [None](#)¹⁵⁸⁵

Multiline description

max_length: [int](#)¹⁵⁸⁶ | [None](#)¹⁵⁸⁷

Maximum length in bytes

min_length: [int](#)¹⁵⁸⁸ | [None](#)¹⁵⁸⁹

Minimum length in bytes

name: [str](#)¹⁵⁹⁰

Member name

1533 <https://docs.python.org/3/library/stdtypes.html#str>
1534 <https://docs.python.org/3/library/functions.html#int>
1535 <https://docs.python.org/3/library/typing.html#typing.Optional>
1536 <https://docs.python.org/3/library/typing.html#typing.Any>
1537 <https://docs.python.org/3/library/typing.html#typing.Optional>
1538 <https://docs.python.org/3/library/stdtypes.html#str>
1539 <https://docs.python.org/3/library/typing.html#typing.Optional>
1540 <https://docs.python.org/3/library/stdtypes.html#str>
1541 <https://docs.python.org/3/library/typing.html#typing.Optional>
1542 <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
1543 <https://docs.python.org/3/library/stdtypes.html#str>
1544 <https://docs.python.org/3/library/stdtypes.html#str>
1545 <https://docs.python.org/3/library/typing.html#typing.Optional>
1546 <https://docs.python.org/3/library/constants.html#None>
1547 <https://docs.python.org/3/library/constants.html#None>
1548 <https://docs.python.org/3/library/stdtypes.html#dict>
1549 <https://docs.python.org/3/library/stdtypes.html#str>
1550 <https://docs.python.org/3/library/stdtypes.html#str>
1551 <https://docs.python.org/3/library/typing.html#typing.Any>
1552 <https://docs.python.org/3/library/functions.html#int>
1553 <https://docs.python.org/3/library/stdtypes.html#str>
1554 <https://docs.python.org/3/library/constants.html#None>
1555 <https://docs.python.org/3/library/stdtypes.html#str>
1556 <https://docs.python.org/3/library/stdtypes.html#str>
1557 <https://docs.python.org/3/library/constants.html#None>
1558 <https://docs.python.org/3/library/stdtypes.html#str>
1559 <https://docs.python.org/3/library/constants.html#None>

short_description: [str](#)¹⁵⁹¹ | [None](#)¹⁵⁹²

Online description

units: [str](#)¹⁵⁹³ | [None](#)¹⁵⁹⁴

Engineering units

3.10.18 BooleanMember

class `yamcs.pyddb.BooleanMember`

Bases: [Member](#) (page 74), [BooleanDataType](#) (page 69)

__init__(*name*: [str](#)¹⁵⁹⁵, *zero_string_value*: [str](#)¹⁵⁹⁶ = 'False', *one_string_value*: [str](#)¹⁵⁹⁷ = 'True',
initial_value: [Optional](#)¹⁵⁹⁸[[Any](#)¹⁵⁹⁹] = None, *short_description*: [Optional](#)¹⁶⁰⁰[[str](#)¹⁶⁰¹] = None,
long_description: [Optional](#)¹⁶⁰²[[str](#)¹⁶⁰³] = None, *extra*: [Optional](#)¹⁶⁰⁴[[Mapping](#)¹⁶⁰⁵[[str](#)¹⁶⁰⁶,
[str](#)¹⁶⁰⁷]] = None, *units*: [Optional](#)¹⁶⁰⁸[[str](#)¹⁶⁰⁹] = None, *encoding*: [Optional](#)¹⁶¹⁰[[Encoding](#)
(page 55)] = None) → [None](#)¹⁶¹¹

encoding: [Encoding](#) (page 55) | [None](#)¹⁶¹²

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁶¹³[[str](#)¹⁶¹⁴, [str](#)¹⁶¹⁵]

Arbitrary information, keyed by name

initial_value: [Any](#)¹⁶¹⁶

Initial value

long_description: [str](#)¹⁶¹⁷ | [None](#)¹⁶¹⁸

Multiline description

¹⁵⁶⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁶¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁶² <https://docs.python.org/3/library/functions.html#int>
¹⁵⁶³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁶⁴ <https://docs.python.org/3/library/functions.html#int>
¹⁵⁶⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁶⁶ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁵⁶⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁶⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁷⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁷¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁷² <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹⁵⁷³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁷⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁷⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁷⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁷⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁷⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁷⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁸⁰ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁵⁸¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁸² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁸³ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁵⁸⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁸⁵ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁸⁶ <https://docs.python.org/3/library/functions.html#int>
¹⁵⁸⁷ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁸⁸ <https://docs.python.org/3/library/functions.html#int>
¹⁵⁸⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁵⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹² <https://docs.python.org/3/library/constants.html#None>
¹⁵⁹³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹⁴ <https://docs.python.org/3/library/constants.html#None>

name: `str`¹⁶¹⁹
 Member name

one_string_value: `str`¹⁶²⁰

short_description: `str`¹⁶²¹ | `None`¹⁶²²
 Online description

units: `str`¹⁶²³ | `None`¹⁶²⁴
 Engineering units

zero_string_value: `str`¹⁶²⁵

3.10.19 EnumeratedMember

class `yamcs.pyMDB.EnumeratedMember`

Bases: [Member](#) (page 74), [EnumeratedDataType](#) (page 70)

__init__(*name*: `str`¹⁶²⁶, *choices*: [Sequence](#)¹⁶²⁷[[tuple](#)¹⁶²⁸[`int`¹⁶²⁹, `str`¹⁶³⁰] | [tuple](#)¹⁶³¹[`int`¹⁶³², `str`¹⁶³³, `str`¹⁶³⁴]] | [type](#)¹⁶³⁵[[Enum](#)¹⁶³⁶], *initial_value*: [Optional](#)¹⁶³⁷[[Any](#)¹⁶³⁸] = `None`, *short_description*: [Optional](#)¹⁶³⁹[`str`¹⁶⁴⁰] = `None`, *long_description*: [Optional](#)¹⁶⁴¹[`str`¹⁶⁴²] = `None`, *extra*: [Optional](#)¹⁶⁴³[[Mapping](#)¹⁶⁴⁴[`str`¹⁶⁴⁵, `str`¹⁶⁴⁶]] = `None`, *units*: [Optional](#)¹⁶⁴⁷[`str`¹⁶⁴⁸] = `None`, *encoding*: [Optional](#)¹⁶⁴⁹[[Encoding](#) (page 55)] = `None`) → `None`¹⁶⁵⁰

choices: [Sequence](#)¹⁶⁵¹[[tuple](#)¹⁶⁵²[`int`¹⁶⁵³, `str`¹⁶⁵⁴] | [tuple](#)¹⁶⁵⁵[`int`¹⁶⁵⁶, `str`¹⁶⁵⁷, `str`¹⁶⁵⁸]] | [type](#)¹⁶⁵⁹[[Enum](#)¹⁶⁶⁰]

encoding: [Encoding](#) (page 55) | `None`¹⁶⁶¹

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁶⁶²[`str`¹⁶⁶³, `str`¹⁶⁶⁴]

Arbitrary information, keyed by name

¹⁵⁹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁵⁹⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁵⁹⁹ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁶⁰⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁶⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁰² <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁶⁰³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁰⁴ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁶⁰⁵ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹⁶⁰⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁰⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶⁰⁸ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁶⁰⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶¹⁰ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁶¹¹ <https://docs.python.org/3/library/constants.html#None>
¹⁶¹² <https://docs.python.org/3/library/constants.html#None>
¹⁶¹³ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁶¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶¹⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶¹⁶ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁶¹⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶¹⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁶¹⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶²⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶²¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶²² <https://docs.python.org/3/library/constants.html#None>
¹⁶²³ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁶²⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁶²⁵ <https://docs.python.org/3/library/stdtypes.html#str>

initial_value: [Any](#)¹⁶⁶⁵
Initial value

label_for(*value*: [int](#)¹⁶⁶⁶)

long_description: [str](#)¹⁶⁶⁷ | [None](#)¹⁶⁶⁸
Multiline description

name: [str](#)¹⁶⁶⁹
Member name

short_description: [str](#)¹⁶⁷⁰ | [None](#)¹⁶⁷¹
Online description

units: [str](#)¹⁶⁷² | [None](#)¹⁶⁷³
Engineering units

3.10.20 FloatMember

¹⁶²⁶ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶²⁷ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

¹⁶²⁸ <https://docs.python.org/3/library/stdtypes.html#tuple>

¹⁶²⁹ <https://docs.python.org/3/library/functions.html#int>

¹⁶³⁰ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶³¹ <https://docs.python.org/3/library/stdtypes.html#tuple>

¹⁶³² <https://docs.python.org/3/library/functions.html#int>

¹⁶³³ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶³⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶³⁵ <https://docs.python.org/3/library/functions.html#type>

¹⁶³⁶ <https://docs.python.org/3/library/enum.html#enum.Enum>

¹⁶³⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶³⁸ <https://docs.python.org/3/library/typing.html#typing.Any>

¹⁶³⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶⁴⁰ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁴¹ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶⁴² <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁴³ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶⁴⁴ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>

¹⁶⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁴⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁴⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>

¹⁶⁵⁰ <https://docs.python.org/3/library/constants.html#None>

¹⁶⁵¹ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Sequence>

¹⁶⁵² <https://docs.python.org/3/library/stdtypes.html#tuple>

¹⁶⁵³ <https://docs.python.org/3/library/functions.html#int>

¹⁶⁵⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁵⁵ <https://docs.python.org/3/library/stdtypes.html#tuple>

¹⁶⁵⁶ <https://docs.python.org/3/library/functions.html#int>

¹⁶⁵⁷ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁵⁹ <https://docs.python.org/3/library/functions.html#type>

¹⁶⁶⁰ <https://docs.python.org/3/library/enum.html#enum.Enum>

¹⁶⁶¹ <https://docs.python.org/3/library/constants.html#None>

¹⁶⁶² <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁶⁶³ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁶⁵ <https://docs.python.org/3/library/typing.html#typing.Any>

¹⁶⁶⁶ <https://docs.python.org/3/library/functions.html#int>

¹⁶⁶⁷ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁶⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁶⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁷⁰ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁷¹ <https://docs.python.org/3/library/constants.html#None>

¹⁶⁷² <https://docs.python.org/3/library/stdtypes.html#str>

¹⁶⁷³ <https://docs.python.org/3/library/constants.html#None>

class yamcs.pyddb.FloatMember

Bases: [Member](#) (page 74), [FloatDataType](#) (page 71)

__init__(name: [str](#)¹⁶⁷⁴, bits: [Literal](#)[32, 64] = 32, minimum: [float](#)¹⁶⁷⁵ | [None](#)¹⁶⁷⁶ = None, minimum_inclusive: [bool](#)¹⁶⁷⁷ = True, maximum: [float](#)¹⁶⁷⁸ | [None](#)¹⁶⁷⁹ = None, maximum_inclusive: [bool](#)¹⁶⁸⁰ = True, initial_value: [Any](#) = None, short_description: [str](#)¹⁶⁸¹ | [None](#)¹⁶⁸² = None, long_description: [str](#)¹⁶⁸³ | [None](#)¹⁶⁸⁴ = None, extra: [Mapping](#)[[str](#)¹⁶⁸⁵, [str](#)¹⁶⁸⁶] | [None](#)¹⁶⁸⁷ = None, units: [str](#)¹⁶⁸⁸ | [None](#)¹⁶⁸⁹ = None, encoding: [Encoding](#) (page 55) | [None](#)¹⁶⁹⁰ = None, calibrator: [Calibrator](#) (page 59) | [None](#)¹⁶⁹¹ = None) → [None](#)¹⁶⁹²

bits: [Literal](#)[32, 64]

calibrator: [Calibrator](#) (page 59) | [None](#)¹⁶⁹³

Describes how a raw value is transformed to an engineering value

encoding: [Encoding](#) (page 55) | [None](#)¹⁶⁹⁴

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁶⁹⁵[[str](#)¹⁶⁹⁶, [str](#)¹⁶⁹⁷]

Arbitrary information, keyed by name

initial_value: [Any](#)

Initial value

long_description: [str](#)¹⁶⁹⁸ | [None](#)¹⁶⁹⁹

Multiline description

maximum: [float](#)¹⁷⁰⁰ | [None](#)¹⁷⁰¹

Maximum valid engineering value (inclusive)

maximum_inclusive: [bool](#)¹⁷⁰²

Whether the maximum value itself is valid

minimum: [float](#)¹⁷⁰³ | [None](#)¹⁷⁰⁴

Minimum valid engineering value

minimum_inclusive: [bool](#)¹⁷⁰⁵

Whether the minimum value itself is valid

name: [str](#)¹⁷⁰⁶

Member name

short_description: [str](#)¹⁷⁰⁷ | [None](#)¹⁷⁰⁸

Online description

units: [str](#)¹⁷⁰⁹ | [None](#)¹⁷¹⁰

Engineering units

3.10.21 IntegerMember

`class yamcs.pyMDB.IntegerMember`

Bases: [Member](#) (page 74), [IntegerDataType](#) (page 72)

`__init__`(*name*: [str](#)¹⁷¹¹, *signed*: [bool](#)¹⁷¹² = `True`, *bits*: [int](#)¹⁷¹³ = 32, *minimum*: [int](#)¹⁷¹⁴ | [None](#)¹⁷¹⁵ = `None`, *maximum*: [int](#)¹⁷¹⁶ | [None](#)¹⁷¹⁷ = `None`, *initial_value*: `Any` = `None`, *short_description*: [str](#)¹⁷¹⁸ | [None](#)¹⁷¹⁹ = `None`, *long_description*: [str](#)¹⁷²⁰ | [None](#)¹⁷²¹ = `None`, *extra*: [Mapping](#)[[str](#)¹⁷²², [str](#)¹⁷²³] | [None](#)¹⁷²⁴ = `None`, *units*: [str](#)¹⁷²⁵ | [None](#)¹⁷²⁶ = `None`, *encoding*: [Encoding](#) (page 55) | [None](#)¹⁷²⁷ = `None`, *calibrator*: [Calibrator](#) (page 59) | [None](#)¹⁷²⁸ = `None`)
→ [None](#)¹⁷²⁹

bits: [int](#)¹⁷³⁰

calibrator: [Calibrator](#) (page 59) | [None](#)¹⁷³¹

Describes how a raw value is transformed to an engineering value

encoding: [Encoding](#) (page 55) | [None](#)¹⁷³²

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁷³³[[str](#)¹⁷³⁴, [str](#)¹⁷³⁵]

Arbitrary information, keyed by name

initial_value: `Any`

Initial value

long_description: [str](#)¹⁷³⁶ | [None](#)¹⁷³⁷

Multiline description

1674 <https://docs.python.org/3/library/stdtypes.html#str>
1675 <https://docs.python.org/3/library/functions.html#float>
1676 <https://docs.python.org/3/library/constants.html#None>
1677 <https://docs.python.org/3/library/functions.html#bool>
1678 <https://docs.python.org/3/library/functions.html#float>
1679 <https://docs.python.org/3/library/constants.html#None>
1680 <https://docs.python.org/3/library/functions.html#bool>
1681 <https://docs.python.org/3/library/stdtypes.html#str>
1682 <https://docs.python.org/3/library/constants.html#None>
1683 <https://docs.python.org/3/library/stdtypes.html#str>
1684 <https://docs.python.org/3/library/constants.html#None>
1685 <https://docs.python.org/3/library/stdtypes.html#str>
1686 <https://docs.python.org/3/library/stdtypes.html#str>
1687 <https://docs.python.org/3/library/constants.html#None>
1688 <https://docs.python.org/3/library/stdtypes.html#str>
1689 <https://docs.python.org/3/library/constants.html#None>
1690 <https://docs.python.org/3/library/constants.html#None>
1691 <https://docs.python.org/3/library/constants.html#None>
1692 <https://docs.python.org/3/library/constants.html#None>
1693 <https://docs.python.org/3/library/constants.html#None>
1694 <https://docs.python.org/3/library/constants.html#None>
1695 <https://docs.python.org/3/library/stdtypes.html#dict>
1696 <https://docs.python.org/3/library/stdtypes.html#str>
1697 <https://docs.python.org/3/library/stdtypes.html#str>
1698 <https://docs.python.org/3/library/stdtypes.html#str>
1699 <https://docs.python.org/3/library/constants.html#None>
1700 <https://docs.python.org/3/library/functions.html#float>
1701 <https://docs.python.org/3/library/constants.html#None>
1702 <https://docs.python.org/3/library/functions.html#bool>
1703 <https://docs.python.org/3/library/functions.html#float>
1704 <https://docs.python.org/3/library/constants.html#None>
1705 <https://docs.python.org/3/library/functions.html#bool>
1706 <https://docs.python.org/3/library/stdtypes.html#str>
1707 <https://docs.python.org/3/library/stdtypes.html#str>
1708 <https://docs.python.org/3/library/constants.html#None>
1709 <https://docs.python.org/3/library/stdtypes.html#str>
1710 <https://docs.python.org/3/library/constants.html#None>

maximum: `int`¹⁷³⁸ | `None`¹⁷³⁹
Maximum valid engineering value (inclusive)

minimum: `int`¹⁷⁴⁰ | `None`¹⁷⁴¹
Minimum valid engineering value (inclusive)

name: `str`¹⁷⁴²
Member name

short_description: `str`¹⁷⁴³ | `None`¹⁷⁴⁴
Online description

signed: `bool`¹⁷⁴⁵

units: `str`¹⁷⁴⁶ | `None`¹⁷⁴⁷
Engineering units

3.10.22 StringMember

class `yamcs.pyMDB.StringMember`

Bases: [Member](#) (page 74), [StringDataType](#) (page 73)

__init__(`name`: `str`¹⁷⁴⁸, `min_length`: [Optional](#)¹⁷⁴⁹[`int`¹⁷⁵⁰] = `None`, `max_length`: [Optional](#)¹⁷⁵¹[`int`¹⁷⁵²] = `None`, `initial_value`: [Optional](#)¹⁷⁵³[`Any`¹⁷⁵⁴] = `None`, `short_description`: [Optional](#)¹⁷⁵⁵[`str`¹⁷⁵⁶] = `None`, `long_description`: [Optional](#)¹⁷⁵⁷[`str`¹⁷⁵⁸] = `None`, `extra`: [Optional](#)¹⁷⁵⁹[[Mapping](#)¹⁷⁶⁰[`str`¹⁷⁶¹, `str`¹⁷⁶²]] = `None`, `units`: [Optional](#)¹⁷⁶³[`str`¹⁷⁶⁴] = `None`, `encoding`: [Optional](#)¹⁷⁶⁵[[Encoding](#) (page 55)] = `None`) → `None`¹⁷⁶⁶

1711 <https://docs.python.org/3/library/stdtypes.html#str>
1712 <https://docs.python.org/3/library/functions.html#bool>
1713 <https://docs.python.org/3/library/functions.html#int>
1714 <https://docs.python.org/3/library/functions.html#int>
1715 <https://docs.python.org/3/library/constants.html#None>
1716 <https://docs.python.org/3/library/functions.html#int>
1717 <https://docs.python.org/3/library/constants.html#None>
1718 <https://docs.python.org/3/library/stdtypes.html#str>
1719 <https://docs.python.org/3/library/constants.html#None>
1720 <https://docs.python.org/3/library/stdtypes.html#str>
1721 <https://docs.python.org/3/library/constants.html#None>
1722 <https://docs.python.org/3/library/stdtypes.html#str>
1723 <https://docs.python.org/3/library/stdtypes.html#str>
1724 <https://docs.python.org/3/library/constants.html#None>
1725 <https://docs.python.org/3/library/stdtypes.html#str>
1726 <https://docs.python.org/3/library/constants.html#None>
1727 <https://docs.python.org/3/library/constants.html#None>
1728 <https://docs.python.org/3/library/constants.html#None>
1729 <https://docs.python.org/3/library/constants.html#None>
1730 <https://docs.python.org/3/library/functions.html#int>
1731 <https://docs.python.org/3/library/constants.html#None>
1732 <https://docs.python.org/3/library/constants.html#None>
1733 <https://docs.python.org/3/library/stdtypes.html#dict>
1734 <https://docs.python.org/3/library/stdtypes.html#str>
1735 <https://docs.python.org/3/library/stdtypes.html#str>
1736 <https://docs.python.org/3/library/stdtypes.html#str>
1737 <https://docs.python.org/3/library/constants.html#None>
1738 <https://docs.python.org/3/library/functions.html#int>
1739 <https://docs.python.org/3/library/constants.html#None>
1740 <https://docs.python.org/3/library/functions.html#int>
1741 <https://docs.python.org/3/library/constants.html#None>
1742 <https://docs.python.org/3/library/stdtypes.html#str>
1743 <https://docs.python.org/3/library/stdtypes.html#str>
1744 <https://docs.python.org/3/library/constants.html#None>
1745 <https://docs.python.org/3/library/functions.html#bool>
1746 <https://docs.python.org/3/library/stdtypes.html#str>
1747 <https://docs.python.org/3/library/constants.html#None>

encoding: [Encoding](#) (page 55) | [None](#)¹⁷⁶⁷

How this data is sent or received from some non-native, off-platform device. (e.g. a spacecraft)

extra: [dict](#)¹⁷⁶⁸[[str](#)¹⁷⁶⁹, [str](#)¹⁷⁷⁰]

Arbitrary information, keyed by name

initial_value: [Any](#)¹⁷⁷¹

Initial value

long_description: [str](#)¹⁷⁷² | [None](#)¹⁷⁷³

Multiline description

max_length: [int](#)¹⁷⁷⁴ | [None](#)¹⁷⁷⁵

Maximum length in characters

min_length: [int](#)¹⁷⁷⁶ | [None](#)¹⁷⁷⁷

Minimum length in characters

name: [str](#)¹⁷⁷⁸

Member name

short_description: [str](#)¹⁷⁷⁹ | [None](#)¹⁷⁸⁰

Online description

units: [str](#)¹⁷⁸¹ | [None](#)¹⁷⁸²

Engineering units

3.11 Exceptions

¹⁷⁴⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁴⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁵⁰ <https://docs.python.org/3/library/functions.html#int>
¹⁷⁵¹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁵² <https://docs.python.org/3/library/functions.html#int>
¹⁷⁵³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁵⁴ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁷⁵⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁵⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁵⁷ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁵⁹ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁶⁰ <https://docs.python.org/3/library/collections.abc.html#collections.abc.Mapping>
¹⁷⁶¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁶² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁶³ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁶⁴ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁶⁵ <https://docs.python.org/3/library/typing.html#typing.Optional>
¹⁷⁶⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁶⁷ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁶⁸ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁷⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁷⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁷¹ <https://docs.python.org/3/library/typing.html#typing.Any>
¹⁷⁷² <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁷³ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁷⁴ <https://docs.python.org/3/library/functions.html#int>
¹⁷⁷⁵ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁷⁶ <https://docs.python.org/3/library/functions.html#int>
¹⁷⁷⁷ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁷⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁷⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁸⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁷⁸¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁷⁸² <https://docs.python.org/3/library/constants.html#None>

3.11.1 ExportError

`class yamcs.pyldb.ExportError`

Bases: [Exception](#)¹⁷⁸³

An error occurred while generating an export.

`__init__(*args, **kwargs)`

`__new__(**kwargs)`

`args`

`with_traceback()`

`Exception.with_traceback(tb)` – set `self.__traceback__` to `tb` and return `self`.

3.12 Expressions

3.12.1 ParameterMember

`class yamcs.pyldb.ParameterMember`

Bases: [object](#)¹⁷⁸⁴

`__init__(parameter: AggregateParameter (page 27), path: Member (page 74) | list1785[Member (page 74)])`

3.12.2 Methods

`pyldb.eq(value: Any, calibrated=True)`

`pyldb.ne(value: Any, calibrated=True)`

`pyldb.lt(value: Any, calibrated=True)`

`pyldb.lte(value: Any, calibrated=True)`

`pyldb.gt(value: Any, calibrated=True)`

`pyldb.gte(value: Any, calibrated=True)`

`pyldb.all_of(expression2: Expression, *args: Expression)`

`pyldb.any_of(expression2: Expression, *args: Expression)`

3.13 Verifiers

3.13.1 Verifier

¹⁷⁸³ <https://docs.python.org/3/library/exceptions.html#Exception>

¹⁷⁸⁴ <https://docs.python.org/3/library/functions.html#object>

¹⁷⁸⁵ <https://docs.python.org/3/library/stdtypes.html#list>

class `yamcs.pymdb.Verifier`

Bases: `object`¹⁷⁸⁶

`Verifier`(`check`: 'Check', `timeout`: 'float', `delay`: 'float' = 0, `name`: 'str | None' = None, `on_success`: 'TerminationAction | None' = None, `on_fail`: 'TerminationAction | None' = None, `on_timeout`: 'TerminationAction | None' = None, `extra`: 'dict[str, str]' = <factory>)

`__init__`(`check`: `yamcs.pymdb.verifiers.AlgorithmCheck` | `yamcs.pymdb.verifiers.ContainerCheck` | `yamcs.pymdb.verifiers.ExpressionCheck`, `timeout`: float, `delay`: float = 0, `name`: ~typing.Optional[str] = None, `on_success`: ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, `on_fail`: ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, `on_timeout`: ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, `extra`: dict[str, str] = <factory>) → None¹⁷⁸⁷

`check`: `AlgorithmCheck` (page 94) | `ContainerCheck` (page 95) | `ExpressionCheck` (page 95)

Check to perform

`delay`: float¹⁷⁸⁸ = 0

Wait time before starting to check (in seconds)

`extra`: dict¹⁷⁸⁹[str¹⁷⁹⁰, str¹⁷⁹¹]

Arbitrary information, keyed by name

`name`: str¹⁷⁹² | None¹⁷⁹³ = None

Optional name

`on_fail`: `TerminationAction` (page 94) | None¹⁷⁹⁴ = None

What it means for the whole command, when this single verifier fails

`on_success`: `TerminationAction` (page 94) | None¹⁷⁹⁵ = None

What it means for the whole command, when this single verifier succeeds

`on_timeout`: `TerminationAction` (page 94) | None¹⁷⁹⁶ = None

What it means for the whole command, when this single verifier times out

`timeout`: float¹⁷⁹⁷

How long to wait for a check result (in seconds)

3.13.2 TransferredToRangeVerifier

class `yamcs.pymdb.TransferredToRangeVerifier`

Bases: `Verifier` (page 86)

A verifier that checks whether the command has been received to the network that connects the ground system to the spacecraft.

The result of this verifier must originate from something other than the spacecraft.

¹⁷⁸⁶ <https://docs.python.org/3/library/functions.html#object>

¹⁷⁸⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁸⁸ <https://docs.python.org/3/library/functions.html#float>

¹⁷⁸⁹ <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁷⁹⁰ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁷⁹¹ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁷⁹² <https://docs.python.org/3/library/stdtypes.html#str>

¹⁷⁹³ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁹⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁹⁵ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁹⁶ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁹⁷ <https://docs.python.org/3/library/functions.html#float>

```

__init__(check: yamcs.pymdb.verifiers.AlgorithmCheck | yamcs.pymdb.verifiers.ContainerCheck |
          yamcs.pymdb.verifiers.ExpressionCheck, timeout: float, delay: float = 0, name:
          ~typing.Optional[str] = None, on_success:
          ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, on_fail:
          yamcs.pymdb.verifiers.TerminationAction | None = TerminationAction.FAIL, on_timeout:
          ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, extra: dict[str, str] =
          <factory>) → None1798

```

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: [float](#)¹⁷⁹⁹ = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸⁰⁰[[str](#)¹⁸⁰¹, [str](#)¹⁸⁰²]

Arbitrary information, keyed by name

name: [str](#)¹⁸⁰³ | [None](#)¹⁸⁰⁴ = None

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸⁰⁵ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸⁰⁶ = None

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸⁰⁷ = None

What it means for the whole command, when this single verifier times out

timeout: [float](#)¹⁸⁰⁸

How long to wait for a check result (in seconds)

3.13.3 SentFromRangeVerifier

class yamcs.pymdb.SentFromRangeVerifier

Bases: [Verifier](#) (page 86)

A verifier that checks whether the command been transmitted to the spacecraft by the network that connects the ground system to the spacecraft.

The result of this verifier must originate from something other than the system.

```

__init__(check: yamcs.pymdb.verifiers.AlgorithmCheck | yamcs.pymdb.verifiers.ContainerCheck |
          yamcs.pymdb.verifiers.ExpressionCheck, timeout: float, delay: float = 0, name:
          ~typing.Optional[str] = None, on_success:
          ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, on_fail:
          yamcs.pymdb.verifiers.TerminationAction | None = TerminationAction.FAIL, on_timeout:
          ~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, extra: dict[str, str] =
          <factory>) → None1809

```

¹⁷⁹⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁷⁹⁹ <https://docs.python.org/3/library/functions.html#float>

¹⁸⁰⁰ <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁸⁰¹ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁰² <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁰³ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁰⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁰⁵ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁰⁶ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁰⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁰⁸ <https://docs.python.org/3/library/functions.html#float>

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: [float](#)¹⁸¹⁰ = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸¹¹ [[str](#)¹⁸¹², [str](#)¹⁸¹³]

Arbitrary information, keyed by name

name: [str](#)¹⁸¹⁴ | [None](#)¹⁸¹⁵ = None

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸¹⁶ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸¹⁷ = None

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸¹⁸ = None

What it means for the whole command, when this single verifier times out

timeout: [float](#)¹⁸¹⁹

How long to wait for a check result (in seconds)

3.13.4 ReceivedVerifier

class `yamcs.pymdb.ReceivedVerifier`

Bases: [Verifier](#) (page 86)

A verifier that checks that the system has received the command

```
__init__(check: yamcs.pymdb.verifiers.AlgorithmCheck | yamcs.pymdb.verifiers.ContainerCheck | yamcs.pymdb.verifiers.ExpressionCheck, timeout: float, delay: float = 0, name:  
~typing.Optional[str] = None, on_success:  
~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, on_fail:  
yamcs.pymdb.verifiers.TerminationAction | None = TerminationAction.FAIL, on_timeout:  
~typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, extra: dict[str, str] =  
<factory>) → None1820
```

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: [float](#)¹⁸²¹ = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸²² [[str](#)¹⁸²³, [str](#)¹⁸²⁴]

Arbitrary information, keyed by name

¹⁸⁰⁹ <https://docs.python.org/3/library/constants.html#None>

¹⁸¹⁰ <https://docs.python.org/3/library/functions.html#float>

¹⁸¹¹ <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁸¹² <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸¹³ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸¹⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸¹⁵ <https://docs.python.org/3/library/constants.html#None>

¹⁸¹⁶ <https://docs.python.org/3/library/constants.html#None>

¹⁸¹⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁸¹⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁸¹⁹ <https://docs.python.org/3/library/functions.html#float>

name: [str](#)¹⁸²⁵ | [None](#)¹⁸²⁶ = [None](#)

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸²⁷ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸²⁸ = [None](#)

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸²⁹ = [None](#)

What it means for the whole command, when this single verifier times out

timeout: [float](#)¹⁸³⁰

How long to wait for a check result (in seconds)

3.13.5 AcceptedVerifier

class `yamcs.pyldb.AcceptedVerifier`

Bases: [Verifier](#) (page 86)

A verifier that checks that the system has accepted the command

__init__(*check*: [yamcs.pyldb.verifiers.AlgorithmCheck](#) | [yamcs.pyldb.verifiers.ContainerCheck](#) | [yamcs.pyldb.verifiers.ExpressionCheck](#), *timeout*: [float](#), *delay*: [float](#) = 0, *name*: [typing.Optional\[str\]](#) = [None](#), *on_success*: [typing.Optional\[~yamcs.pyldb.verifiers.TerminationAction\]](#) = [None](#), *on_fail*: [yamcs.pyldb.verifiers.TerminationAction](#) | [None](#) = [TerminationAction.FAIL](#), *on_timeout*: [typing.Optional\[~yamcs.pyldb.verifiers.TerminationAction\]](#) = [None](#), *extra*: [dict\[str, str\]](#) = [<factory>](#)) → [None](#)¹⁸³¹

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: [float](#)¹⁸³² = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸³³[[str](#)¹⁸³⁴, [str](#)¹⁸³⁵]

Arbitrary information, keyed by name

name: [str](#)¹⁸³⁶ | [None](#)¹⁸³⁷ = [None](#)

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸³⁸ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸³⁹ = [None](#)

What it means for the whole command, when this single verifier succeeds

¹⁸²⁰ <https://docs.python.org/3/library/constants.html#None>

¹⁸²¹ <https://docs.python.org/3/library/functions.html#float>

¹⁸²² <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁸²³ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸²⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸²⁵ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸²⁶ <https://docs.python.org/3/library/constants.html#None>

¹⁸²⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁸²⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁸²⁹ <https://docs.python.org/3/library/constants.html#None>

¹⁸³⁰ <https://docs.python.org/3/library/functions.html#float>

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸⁴⁰ = None

What it means for the whole command, when this single verifier times out

timeout: [float](#)¹⁸⁴¹

How long to wait for a check result (in seconds)

3.13.6 QueuedVerifier

class `yamcs.pymdb.QueuedVerifier`

Bases: [Verifier](#) (page 86)

A verifier that checks that the command is scheduled for execution by the system

__init__(*check*: [yamcs.pymdb.verifiers.AlgorithmCheck](#) | [yamcs.pymdb.verifiers.ContainerCheck](#) | [yamcs.pymdb.verifiers.ExpressionCheck](#), *timeout*: float, *delay*: float = 0, *name*: [typing.Optional\[str\]](#) = None, *on_success*: [typing.Optional\[~yamcs.pymdb.verifiers.TerminationAction\]](#) = None, *on_fail*: [yamcs.pymdb.verifiers.TerminationAction](#) | None = [TerminationAction.FAIL](#), *on_timeout*: [typing.Optional\[~yamcs.pymdb.verifiers.TerminationAction\]](#) = None, *extra*: [dict\[str, str\]](#) = <factory>) → [None](#)¹⁸⁴²

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: [float](#)¹⁸⁴³ = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸⁴⁴[[str](#)¹⁸⁴⁵, [str](#)¹⁸⁴⁶]

Arbitrary information, keyed by name

name: [str](#)¹⁸⁴⁷ | [None](#)¹⁸⁴⁸ = None

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸⁴⁹ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸⁵⁰ = None

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸⁵¹ = None

What it means for the whole command, when this single verifier times out

timeout: [float](#)¹⁸⁵²

How long to wait for a check result (in seconds)

¹⁸³¹ <https://docs.python.org/3/library/constants.html#None>

¹⁸³² <https://docs.python.org/3/library/functions.html#float>

¹⁸³³ <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁸³⁴ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸³⁵ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸³⁶ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸³⁷ <https://docs.python.org/3/library/constants.html#None>

¹⁸³⁸ <https://docs.python.org/3/library/constants.html#None>

¹⁸³⁹ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁴⁰ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁴¹ <https://docs.python.org/3/library/functions.html#float>

3.13.7 ExecutionVerifier

class `yamcs.pymdb.ExecutionVerifier`

Bases: [Verifier](#) (page 86)

A verifier that checks that the command is being executed.

```
__init__(check: yamcs.pymdb.verifiers.AlgorithmCheck | yamcs.pymdb.verifiers.ContainerCheck |  
         yamcs.pymdb.verifiers.ExpressionCheck, timeout: float, delay: float = 0, name:  
         typing.Optional[str] = None, on_success:  
         typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, on_fail:  
         yamcs.pymdb.verifiers.TerminationAction | None = TerminationAction.FAIL, on_timeout:  
         typing.Optional[~yamcs.pymdb.verifiers.TerminationAction] = None, extra: dict[str, str] =  
         <factory>) → None1853
```

check: [AlgorithmCheck](#) (page 94) | [ContainerCheck](#) (page 95) | [ExpressionCheck](#) (page 95)

Check to perform

delay: `float`¹⁸⁵⁴ = 0

Wait time before starting to check (in seconds)

extra: `dict`¹⁸⁵⁵[`str`¹⁸⁵⁶, `str`¹⁸⁵⁷]

Arbitrary information, keyed by name

name: `str`¹⁸⁵⁸ | None¹⁸⁵⁹ = None

Optional name

on_fail: [TerminationAction](#) (page 94) | None¹⁸⁶⁰ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | None¹⁸⁶¹ = None

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | None¹⁸⁶² = None

What it means for the whole command, when this single verifier times out

timeout: `float`¹⁸⁶³

How long to wait for a check result (in seconds)

¹⁸⁴² <https://docs.python.org/3/library/constants.html#None>
¹⁸⁴³ <https://docs.python.org/3/library/functions.html#float>
¹⁸⁴⁴ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁸⁴⁵ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁴⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁴⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁴⁸ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁴⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁵⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁵¹ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁵² <https://docs.python.org/3/library/functions.html#float>
¹⁸⁵³ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁵⁴ <https://docs.python.org/3/library/functions.html#float>
¹⁸⁵⁵ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁸⁵⁶ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁵⁷ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁵⁸ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁵⁹ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁶⁰ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁶¹ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁶² <https://docs.python.org/3/library/constants.html#None>
¹⁸⁶³ <https://docs.python.org/3/library/functions.html#float>

3.13.8 CompleteVerifier

class yamcs.pyldb.CompleteVerifier

Bases: [Verifier](#) (page 86)

A verifier that checks whether the command to be considered completed

__init__(*check: Check, timeout: float, delay: float = 0, name: str | None = None, on_success: TerminationAction | None = TerminationAction.SUCCESS, on_fail: TerminationAction | None = TerminationAction.FAIL, on_timeout: TerminationAction | None = None, extra: dict[str, str] = <factory>, return_parameter: Parameter | None = None*) → [None](#)¹⁸⁶⁴

check: [Check](#)

Check to perform

delay: [float](#)¹⁸⁶⁵ = 0

Wait time before starting to check (in seconds)

extra: [dict](#)¹⁸⁶⁶[[str](#)¹⁸⁶⁷, [str](#)¹⁸⁶⁸]

Arbitrary information, keyed by name

name: [str](#)¹⁸⁶⁹ | [None](#)¹⁸⁷⁰ = None

Optional name

on_fail: [TerminationAction](#) (page 94) | [None](#)¹⁸⁷¹ = 2

What it means for the whole command, when this single verifier fails

on_success: [TerminationAction](#) (page 94) | [None](#)¹⁸⁷² = 1

What it means for the whole command, when this single verifier succeeds

on_timeout: [TerminationAction](#) (page 94) | [None](#)¹⁸⁷³ = None

What it means for the whole command, when this single verifier times out

return_parameter: [Parameter](#) (page 13) | [None](#)¹⁸⁷⁴ = None

timeout: [float](#)¹⁸⁷⁵

How long to wait for a check result (in seconds)

3.13.9 FailedVerifier

class yamcs.pyldb.FailedVerifier

Bases: [Verifier](#) (page 86)

A verifier that checks that the command failed.

__init__(*check: Check, timeout: float, delay: float = 0, name: str | None = None, on_success: TerminationAction | None = TerminationAction.FAIL, on_fail: TerminationAction | None = None, on_timeout: TerminationAction | None = None, extra: dict[str, str] = <factory>, return_parameter: Parameter | None = None*) → [None](#)¹⁸⁷⁶

¹⁸⁶⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁶⁵ <https://docs.python.org/3/library/functions.html#float>

¹⁸⁶⁶ <https://docs.python.org/3/library/stdtypes.html#dict>

¹⁸⁶⁷ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁶⁸ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁶⁹ <https://docs.python.org/3/library/stdtypes.html#str>

¹⁸⁷⁰ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁷¹ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁷² <https://docs.python.org/3/library/constants.html#None>

¹⁸⁷³ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁷⁴ <https://docs.python.org/3/library/constants.html#None>

¹⁸⁷⁵ <https://docs.python.org/3/library/functions.html#float>

check: `Check`
 Check to perform

delay: `float`¹⁸⁷⁷ = 0
 Wait time before starting to check (in seconds)

extra: `dict`¹⁸⁷⁸[`str`¹⁸⁷⁹, `str`¹⁸⁸⁰]
 Arbitrary information, keyed by name

name: `str`¹⁸⁸¹ | `None`¹⁸⁸² = None
 Optional name

on_fail: `TerminationAction` (page 94) | `None`¹⁸⁸³ = None
 What it means for the whole command, when this single verifier fails

on_success: `TerminationAction` (page 94) | `None`¹⁸⁸⁴ = 2
 What it means for the whole command, when this single verifier succeeds

on_timeout: `TerminationAction` (page 94) | `None`¹⁸⁸⁵ = None
 What it means for the whole command, when this single verifier times out

return_parameter: `Parameter` (page 13) | `None`¹⁸⁸⁶ = None

timeout: `float`¹⁸⁸⁷
 How long to wait for a check result (in seconds)

3.13.10 TerminationAction

`class yamcs.pyddb.TerminationAction`
 Bases: `Enum`¹⁸⁸⁸
 An enumeration.
 SUCCESS = 1
 FAIL = 2

3.13.11 AlgorithmCheck

`class yamcs.pyddb.AlgorithmCheck`
 Bases: `object`¹⁸⁸⁹
`__init__(algorithm: UnnamedAlgorithm (page 36))`

¹⁸⁷⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁷⁷ <https://docs.python.org/3/library/functions.html#float>
¹⁸⁷⁸ <https://docs.python.org/3/library/stdtypes.html#dict>
¹⁸⁷⁹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁸⁰ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁸¹ <https://docs.python.org/3/library/stdtypes.html#str>
¹⁸⁸² <https://docs.python.org/3/library/constants.html#None>
¹⁸⁸³ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁸⁴ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁸⁵ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁸⁶ <https://docs.python.org/3/library/constants.html#None>
¹⁸⁸⁷ <https://docs.python.org/3/library/functions.html#float>
¹⁸⁸⁸ <https://docs.python.org/3/library/enum.html#enum.Enum>
¹⁸⁸⁹ <https://docs.python.org/3/library/functions.html#object>

3.13.12 ContainerCheck

```
class yamcs.pyldb.ContainerCheck
```

Bases: [object](#)¹⁸⁹⁰

```
__init__(container: Container (page 30))
```

3.13.13 ExpressionCheck

```
class yamcs.pyldb.ExpressionCheck
```

Bases: [object](#)¹⁸⁹¹

```
__init__(expression: Expression)
```

¹⁸⁹⁰ <https://docs.python.org/3/library/functions.html#object>

¹⁸⁹¹ <https://docs.python.org/3/library/functions.html#object>

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