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Camera(ID)

base classes — [bpy_struct](#), [ID](#)

class bpy.types.Camera(ID)

Camera data-block for storing camera settings

angle

Camera lens field of view

TYPE:

float in [0.00640536, 3.01675], default 0.69115

angle_x

Camera lens horizontal field of view

TYPE:

float in [0.00640536, 3.01675], default 0.0

angle_y

Camera lens vertical field of view

TYPE:

float in [0.00640536, 3.01675], default 0.0

animation_data

Animation data for this data-block

TYPE:

[AnimData](#), (readonly)

background_images

List of background images

TYPE:

[CameraBackgroundImages](#) [bpy_prop_collection](#) of [CameraBackgroundImage](#), (readonly)

central_cylindrical_radius

Radius of the virtual cylinder

TYPE:

float in [1e-05, inf], default 1.0

central_cylindrical_range_u_max

Maximum Longitude value for the central cylindrical lens

TYPE:

float in [-inf, inf], default 3.14159

central_cylindrical_range_u_min

Minimum Longitude value for the central cylindrical lens

TYPE:

float in [-inf, inf], default -3.14159

central_cylindrical_range_v_max

Maximum Height value for the central cylindrical lens

TYPE:

float in $[-\infty, \infty]$, default 1.0

central_cylindrical_range_v_min

Minimum Height value for the central cylindrical lens

TYPE:

float in $[-\infty, \infty]$, default -1.0

clip_end

Camera far clipping distance

TYPE:

float in $[1e-06, \infty]$, default 1000.0

clip_start

Camera near clipping distance

TYPE:

float in $[1e-06, \infty]$, default 0.1

display_size

Apparent size of the Camera object in the 3D View

TYPE:

float in $[0.01, 1000]$, default 1.0

dof

TYPE:

[CameraDOFSettings](#), (readonly)

fisheye_fov

Field of view for the fisheye lens

TYPE:

float in $[0.1745, 31.4159]$, default 3.14159

fisheye_lens

Lens focal length (mm)

TYPE:

float in $[0.01, 100]$, default 10.5

fisheye_polynomial_k0

Coefficient K0 of the lens polynomial

TYPE:

float in $[-\infty, \infty]$, default -1.17351e-05

fisheye_polynomial_k1

Coefficient K1 of the lens polynomial

TYPE:

float in $[-\infty, \infty]$, default -0.0199887

fisheye_polynomial_k2

Coefficient K2 of the lens polynomial

TYPE:

float in [-inf, inf], default -3.3525e-06

fisheye_polynomial_k3

Coefficient K3 of the lens polynomial

TYPE:

float in [-inf, inf], default 3.0993e-06

fisheye_polynomial_k4

Coefficient K4 of the lens polynomial

TYPE:

float in [-inf, inf], default -2.61e-08

latitude_max

Maximum latitude (vertical angle) for the equirectangular lens

TYPE:

float in [-1.5708, 1.5708], default 1.5708

latitude_min

Minimum latitude (vertical angle) for the equirectangular lens

TYPE:

float in [-1.5708, 1.5708], default -1.5708

lens

Perspective Camera focal length value in millimeters

TYPE:

float in [1, inf], default 50.0

lens_unit

Unit to edit lens in for the user interface

- `MILLIMETERS` Millimeters – Specify focal length of the lens in millimeters.
- `FOV` Field of View – Specify the lens as the field of view's angle.

TYPE:

enum in ['MILLIMETERS', 'FOV'], default 'MILLIMETERS'

longitude_max

Maximum longitude (horizontal angle) for the equirectangular lens

TYPE:

float in [-inf, inf], default 3.14159

longitude_min

Minimum longitude (horizontal angle) for the equirectangular lens

TYPE:

float in [-inf, inf], default -3.14159

ortho_scale

Orthographic Camera scale (similar to zoom)

TYPE:

float in [0, inf], default 6.0

panorama_type

Distortion to use for the calculation

- `EQUIRECTANGULAR` Equirectangular – Spherical camera for environment maps, also known as Lat Long panorama.
- `EQUIANGULAR_CUBEMAP_FACE` Equiangular Cubemap Face – Single face of an equiangular cubemap.
- `MIRRORBALL` Mirror Ball – Mirror ball mapping for environment maps.
- `FISHEYE_EQUIDISTANT` Fisheye Equidistant – Ideal for fulldomes, ignore the sensor dimensions.
- `FISHEYE_EQUISOLID` Fisheye Equisolid – Similar to most fisheye modern lens, takes sensor dimensions into consideration.
- `FISHEYE_LENS_POLYNOMIAL` Fisheye Lens Polynomial – Defines the lens projection as polynomial to allow real world camera lenses to be mimicked.
- `CENTRAL_CYLINDRICAL` Central Cylindrical – Projection onto a virtual cylinder from its center, similar as a rotating panoramic camera.

TYPE:

enum in ['EQUIRECTANGULAR', 'EQUIANGULAR_CUBEMAP_FACE', 'MIRRORBALL', 'FISHEYE_EQUIDISTANT', 'FISHEYE_EQUISOLID', 'FISHEYE_LENS_POLYNOMIAL', 'CENTRAL_CYLINDRICAL'], default 'FISHEYE_EQUISOLID'

passepertout_alpha

Opacity (alpha) of the darkened overlay in Camera view

TYPE:

float in [0, 1], default 0.5

sensor_fit

Method to fit image and field of view angle inside the sensor

- `AUTO` Auto – Fit to the sensor width or height depending on image resolution.
- `HORIZONTAL` Horizontal – Fit to the sensor width.
- `VERTICAL` Vertical – Fit to the sensor height.

TYPE:

enum in ['AUTO', 'HORIZONTAL', 'VERTICAL'], default 'AUTO'

sensor_height

Vertical size of the image sensor area in millimeters

TYPE:

float in [1, inf], default 24.0

sensor_width

Horizontal size of the image sensor area in millimeters

TYPE:

float in [1, inf], default 36.0

shift_x

Camera horizontal shift

TYPE:

float in [-inf, inf], default 0.0

shift_y

Camera vertical shift

TYPE:

float in $[-\infty, \infty]$, default 0.0

show_background_images

Display reference images behind objects in the 3D View

TYPE:

boolean, default False

show_composition_center

Display center composition guide inside the camera view

TYPE:

boolean, default False

show_composition_center_diagonal

Display diagonal center composition guide inside the camera view

TYPE:

boolean, default False

show_composition_golden

Display golden ratio composition guide inside the camera view

TYPE:

boolean, default False

show_composition_golden_tri_a

Display golden triangle A composition guide inside the camera view

TYPE:

boolean, default False

show_composition_golden_tri_b

Display golden triangle B composition guide inside the camera view

TYPE:

boolean, default False

show_composition_harmony_tri_a

Display harmony A composition guide inside the camera view

TYPE:

boolean, default False

show_composition_harmony_tri_b

Display harmony B composition guide inside the camera view

TYPE:

boolean, default False

show_composition_thirds

Display rule of thirds composition guide inside the camera view

TYPE:

boolean, default False

show_limits

Display the clipping range and focus point on the camera

TYPE:

boolean, default False

show_mist

Display a line from the Camera to indicate the mist area

TYPE:

boolean, default False

show_name

Show the active Camera's name in Camera view

TYPE:

boolean, default False

show_passepartout

Show a darkened overlay outside the image area in Camera view

TYPE:

boolean, default True

show_safe_areas

Show TV title safe and action safe areas in Camera view

TYPE:

boolean, default False

show_safe_center

Show safe areas to fit content in a different aspect ratio

TYPE:

boolean, default False

show_sensor

Show sensor size (film gate) in Camera view

TYPE:

boolean, default False

stereo**TYPE:**

`CameraStereoData`, (readonly, never None)

type

Camera types

TYPE:

enum in ['PERSP', 'ORTHO', 'PANO'], default 'PERSP'

view_frame(*, scene=None)

Return 4 points for the cameras frame (before object transformation)

PARAMETERS:

scene (`Scene`, (optional)) – Scene to use for aspect calculation, when omitted 1:1 aspect is used

RETURNS:

result_1, Result, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$

result_2, Result, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$

result_3, Result, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$

result_4, Result, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$

RETURN TYPE:

(`mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$, `mathutils.Vector` of 3 items in $[-\text{inf}, \text{inf}]$)

classmethod `bl_rna_get_subclass(id, default=None)`

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The RNA type or default when not found.

RETURN TYPE:

`bpy.types.Struct` subclass

classmethod `bl_rna_get_subclass_py(id, default=None)`

PARAMETERS:

id (*str*) – The RNA type identifier.

RETURNS:

The class or default when not found.

RETURN TYPE:

`type`

Inherited Properties

- `bpy_struct.id_data`
- `ID.name`
- `ID.name_full`
- `ID.id_type`
- `ID.session_uid`
- `ID.is_evaluated`
- `ID.original`
- `ID.users`
- `ID.use_fake_user`
- `ID.use_extra_user`
- `ID.is_embedded_data`
- `ID.is_missing`
- `ID.is_runtime_data`
- `ID.is_editable`
- `ID.tag`
- `ID.is_library_indirect`
- `ID.library`
- `ID.library_weak_reference`
- `ID.asset_data`
- `ID.override_library`
- `ID.preview`

Inherited Functions

- `bpy_struct.as_pointer`
- `bpy_struct.driver_add`
- `bpy_struct.driver_remove`
- `bpy_struct.get`
- `bpy_struct.id_properties_clear`
- `bpy_struct.type_recast`
- `bpy_struct.values`
- `ID.rename`
- `ID.evaluated_get`
- `ID.copy`

- `bpy_struct.id_properties_ensure`
- `bpy_struct.id_properties_ui`
- `bpy_struct.is_property_hidden`
- `bpy_struct.is_property_overridable_library`
- `bpy_struct.is_property_readonly`
- `bpy_struct.is_property_set`
- `bpy_struct.items`
- `bpy_struct.keyframe_delete`
- `bpy_struct.keyframe_insert`
- `bpy_struct.keys`
- `bpy_struct.path_from_id`
- `bpy_struct.path_resolve`
- `bpy_struct.pop`
- `bpy_struct.property_overridable_library_set`
- `bpy_struct.property_unset`
- `ID.asset_mark`
- `ID.asset_clear`
- `ID.asset_generate_preview`
- `ID.override_create`
- `ID.override_hierarchy_create`
- `ID.user_clear`
- `ID.user_remap`
- `ID.make_local`
- `ID.user_of_id`
- `ID.animation_data_create`
- `ID.animation_data_clear`
- `ID.update_tag`
- `ID.preview_ensure`
- `ID.bl_rna_get_subclass`
- `ID.bl_rna_get_subclass_py`

References

- `bpy.context.camera` • `BlendDataCameras.new`
- `BlendData.cameras` • `BlendDataCameras.remove`