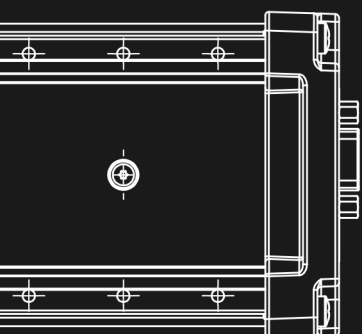
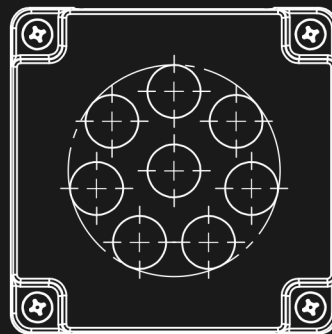
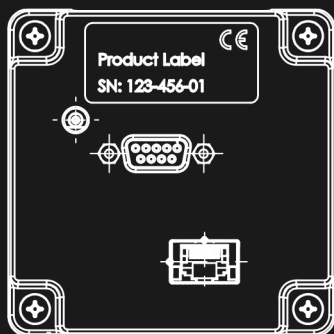
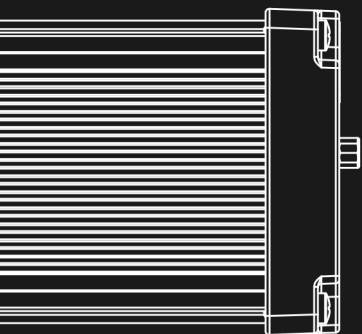
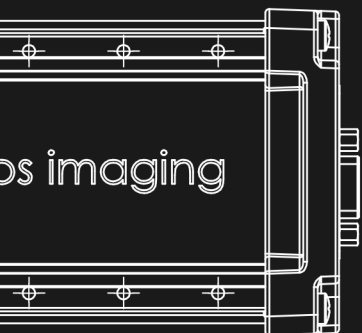


# GEN<i>CAM

## Odos Imaging

### StarForm™ Swift GenICam™ Interface Reference Guide

Version 1.2.0, April 11, 2017



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## 1 Contact

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Note

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## 2 Introduction

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This manual provides a complete reference for the GenICam™ interface for the Odos Imaging StarForm™ Swift camera.

### 2.1 Styles and Convention

This manual uses certain typographical conventions in order to maintain an easily accessible and consistent layout. The styles contained in Table 2.1 and symbols noted below are used throughout the manual.

Table 2.1: Description of typographical styles used throughout this manual.

Style	Function	Example
Bold	important information, key words, headings,	<b>Bold</b>
Emphasis	GenICam™ features	<b>AcquisitionComponentEnable</b>
Italic	filenames	<i>helpfile.pdf</i>
Monotype	code	<code>perl -00 -pe ''</code>



Note

**This symbol highlights important information to note.**



Caution

**Use of the CAUTION heading throughout this manual explains risks that are potentially harmful to either the product or personnel. These sections should always be read carefully and understood.**

---

## 3 GenICam™ Interface

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This chapter contains a complete reference of all available features which are required to configure and control the StarForm™ Swift camera. For each GenICam™ namespace each feature is itemised as shown in the example below.

<b>Name</b>	name of feature [selector]
<b>Category</b>	category of feature
<b>Interface</b>	data type of feature
<b>Access</b>	read/write access
<b>Unit</b>	physical units
<b>Visibility</b>	visibility level
<b>Values</b>	possible values

### 3.1 DeviceControl

#### 3.1.1 DeviceFirmwareIdentifier

<b>Name</b>	DeviceFirmwareIdentifier
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Identifier for device firmware.



### 3.1.2 DeviceManufacturerInfo

<b>Name</b>	DeviceManufacturerInfo
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Manufacturer information about the device.

### 3.1.3 DeviceModelName

<b>Name</b>	DeviceModelName
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Model of the device.

### 3.1.4 DeviceSFNCVersionMajor

<b>Name</b>	DeviceSFNCVersionMajor
<b>Category</b>	DeviceControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Major version of the Standard Features Naming Convention that was used to create the device's GenICam XML.

### 3.1.5 DeviceSFNCVersionMinor

<b>Name</b>	DeviceSFNCVersionMinor
<b>Category</b>	DeviceControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Minor version of the Standard Features Naming Convention that was used to create the device's GenICam XML.

### 3.1.6 DeviceSFNCVersionSubMinor

<b>Name</b>	DeviceSFNCVersionSubMinor
<b>Category</b>	DeviceControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Sub minor version of Standard Features Naming Convention that was used to create the device's GenICam XML.

### 3.1.7 DeviceSerialNumber

<b>Name</b>	DeviceSerialNumber
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Device's serial number. This string is a unique identifier of the device.

### 3.1.8 DeviceTLType

<b>Name</b>	DeviceTLType
<b>Category</b>	DeviceControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	GigEVision

Transport Layer type of the device.

- **GigEVision.** GigE Vision.

### 3.1.9 DeviceTLVersionMajor

<b>Name</b>	DeviceTLVersionMajor
<b>Category</b>	DeviceControl
<b>Interface</b>	StructEntry
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Major version of the Transport Layer of the device.

### 3.1.10 DeviceTLVersionMinor

<b>Name</b>	DeviceTLVersionMinor
<b>Category</b>	DeviceControl
<b>Interface</b>	StructEntry
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Minor version of the Transport Layer of the device.

### 3.1.11 DeviceTLVersionSubMinor

<b>Name</b>	DeviceTLVersionSubMinor
<b>Category</b>	DeviceControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Sub minor version of the Transport Layer of the device.

### 3.1.12 DeviceTemperature

<b>Name</b>	DeviceTemperature
<b>Category</b>	DeviceControl
<b>Interface</b>	IFloat
<b>Access</b>	Read
<b>Unit</b>	C
<b>Visibility</b>	Expert
<b>Values</b>	-

Device temperature in degrees Celsius (C). It is measured at the location selected by DeviceTemperatureSelector.

### 3.1.13 DeviceTemperatureSelector

<b>Name</b>	DeviceTemperatureSelector
<b>Category</b>	DeviceControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	Sensor, Mainboard, Illumination, IlluminationBoard

Selects the location within the device, where the temperature will be measured.

- **Sensor.** Temperature of the image sensor of the camera.

- **Mainboard.** Temperature of the device's mainboard.
- **Illumination.** Temperature of the image illumination of the camera.
- **IlluminationBoard.** Temperature of the device's illumination board.

### 3.1.14 DeviceType

<b>Name</b>	DeviceType
<b>Category</b>	DeviceControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Guru
<b>Values</b>	Transmitter

Returns the device type.

- **Transmitter.** Data stream transmitter device.

### 3.1.15 DeviceUserID

<b>Name</b>	DeviceUserID
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

User-programmable device identifier.

### 3.1.16 DeviceVendorName

<b>Name</b>	DeviceVendorName
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Name of the manufacturer of the device.

### 3.1.17 DeviceVersion

<b>Name</b>	DeviceVersion
<b>Category</b>	DeviceControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Version of the device.

## 3.2 AcquisitionControl

### 3.2.1 AcquisitionMode

<b>Name</b>	AcquisitionMode
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Continuous

Sets the acquisition mode of the device. It defines mainly the number of frames to capture during an acquisition and the way the acquisition stops.

- **Continuous.** Frames are captured continuously until stopped with the AcquisitionStop command.

### 3.2.2 AcquisitionStart

<b>Name</b>	AcquisitionStart
<b>Category</b>	AcquisitionControl
<b>Interface</b>	Command
<b>Access</b>	Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Starts the Acquisition of the device. The number of frames captured is specified by AcquisitionMode.

### 3.2.3 AcquisitionStop

<b>Name</b>	AcquisitionStop
<b>Category</b>	AcquisitionControl
<b>Interface</b>	Command
<b>Access</b>	Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Stops the Acquisition of the device at the end of the current Frame. It is mainly used when AcquisitionMode is Continuous but can be used in any acquisition mode.

### 3.2.4 TriggerMode

<b>Name</b>	TriggerMode
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Off, On

Controls if the selected trigger is active.

- **Off.** Disables the selected trigger.
- **On.** Enable the selected trigger.

### 3.2.5 TriggerSelector

<b>Name</b>	TriggerSelector
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	FrameBurstStart

Selects the type of trigger to configure.

- **FrameBurstStart.** Selects a trigger starting the capture of the bursts of frames in an acquisition.

### 3.2.6 TriggerSoftware

<b>Name</b>	TriggerSoftware
<b>Category</b>	AcquisitionControl
<b>Interface</b>	Command
<b>Access</b>	Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Generates an internal trigger. TriggerSource must be set to Software.



### 3.2.7 TriggerSource

<b>Name</b>	TriggerSource
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Software

Specifies the internal signal or physical input Line to use as the trigger source. The selected trigger must have its TriggerMode set to On.

- **Software.** Specifies that the trigger source will be generated by software using the TriggerSoftware command.

### 3.2.8 IlluminationPower

<b>Name</b>	IlluminationPower
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	$\geq 0$

Sets the emission and exposure counts. Recommended ranges:

- **Scan3dRangeSpan = Small or Standard** : 0 to 4095
- **Scan3dRangeSpan = Large** : 0 to 2047

### 3.2.9 LddEnable

<b>Name</b>	LddEnable
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IBoolean
<b>Access</b>	
<b>Unit</b>	-
<b>Visibility</b>	Guru
<b>Values</b>	-

Controls if the selected LDD is enabled.

### 3.2.10 LddSelector

<b>Name</b>	LddSelector
<b>Category</b>	AcquisitionControl
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Guru
<b>Values</b>	$\geq 1, \leq 7$

Selector for LddEnable

## 3.3 ImageFormatControl

### 3.3.1 ComponentEnable

<b>Name</b>	ComponentEnable
<b>Category</b>	ImageFormatControl
<b>Interface</b>	IBoolean
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Controls if the selected component streaming is active.

### 3.3.2 ComponentSelector

<b>Name</b>	ComponentSelector
<b>Category</b>	ImageFormatControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Intensity, Range, PointCloudMultiplierX, PointCloudMultiplierY, PointCloudMultiplierZ

Selects a component to activate/deactivate its data streaming.

- **Intensity.** The acquisition of intensity (monochrome or color) of the visible reflected light is controlled.
- **Range.** The acquisition of range (distance) data is controlled. The data produced may be only range (2.5D) or a point cloud giving the 3D coordinates depending on the Scan3dControl.
- **PointCloudMultiplierX.** The image used to multiply a raw Range image to convert to a point cloud X coordinate.
- **PointCloudMultiplierY.** The image used to multiply a raw Range image to convert to a point cloud Y coordinate.
- **PointCloudMultiplierZ.** The image used to multiply a raw Range image to convert to a point cloud Z coordinate.

### 3.3.3 PixelFormat

<b>Name</b>	PixelFormat
<b>Category</b>	ImageFormatControl
<b>Interface</b>	IEnumeration
<b>Access</b>	
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Mono12, Mono16, Coord3D_ABC32f, Coord3D_A32f

Format of the pixels provided by the device. It represents all the information provided by PixelSize, PixelColorFilter combined in a single feature.

- **Mono12.** Monochrome 12-bit unpacked
- **Mono16.** Monochrome 16-bit
- **Coord3D\_ABC32f.** 3D coordinate A-B-C 32-bit floating point
- **Coord3D\_A32f.** 3D coordinate A 32-bit floating point

### 3.3.4 Height

<b>Name</b>	Height
<b>Category</b>	ImageFormatControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Height of the image provided by the device (in pixels).

### 3.3.5 Width

<b>Name</b>	Width
<b>Category</b>	ImageFormatControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	-

Width of the image provided by the device (in pixels).

## 3.4 CalibrationControl

### 3.4.1 CalibrationCameraSerial

<b>Name</b>	CalibrationCameraSerial
<b>Category</b>	CalibrationControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Serial number of camera for calibration data. Should match DeviceSerialNumber.

### 3.4.2 CalibrationDate

<b>Name</b>	CalibrationDate
<b>Category</b>	CalibrationControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Date for camera calibration data.

### 3.4.3 CalibrationIdentifier

<b>Name</b>	CalibrationIdentifier
<b>Category</b>	CalibrationControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Identifier for calibration data.

### 3.4.4 CalibrationStatus

<b>Name</b>	CalibrationStatus
<b>Category</b>	CalibrationControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	OK, InvalidCalibration

Indicate state of camera calibration.

- **OK.** Calibration status is good.
- **InvalidCalibration.** The camera calibration is invalid.

### 3.4.5 SensorTemperatureRegulationEffort

<b>Name</b>	SensorTemperatureRegulationEffort
<b>Category</b>	CalibrationControl
<b>Interface</b>	IInteger
<b>Access</b>	
<b>Unit</b>	%
<b>Visibility</b>	Beginner
<b>Values</b>	$\geq -100, \leq 100$

Indicates the stress on the temperature stabilization hardware from -100% to 100% with 0% being ideal.

### 3.4.6 SensorTemperatureRegulationStatus

<b>Name</b>	SensorTemperatureRegulationStatus
<b>Category</b>	CalibrationControl
<b>Interface</b>	IEnumeration
<b>Access</b>	
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	InRange, OutOfRange

Indicate state of sensor temperature regulation.

- **InRange**. Regulation is in stable range.
- **OutOfRange**. Regulation is not in the stable range yet.

### 3.4.7 SensorTemperatureRegulationTarget

<b>Name</b>	SensorTemperatureRegulationTarget
<b>Category</b>	CalibrationControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Temp_10C, Temp_25C, Temp_40C, Temp_55C

Target temperature for image sensor heat regulation.

- **Temp\_10C.** Target sensor temperature 10C
- **Temp\_25C.** Target sensor temperature 25C
- **Temp\_40C.** Target sensor temperature 40C
- **Temp\_55C.** Target sensor temperature 55C

### 3.5 Scan3dControl

#### 3.5.1 Scan3dCalibrationXaUrl

<b>Name</b>	Scan3dCalibrationXaUrl
<b>Category</b>	Scan3dControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

File descriptor for XA calibration data.

#### 3.5.2 Scan3dCalibrationYaUrl

<b>Name</b>	Scan3dCalibrationYaUrl
<b>Category</b>	Scan3dControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

File descriptor for YA calibration data.

### 3.5.3 Scan3dCalibrationZaUrl

<b>Name</b>	Scan3dCalibrationZaUrl
<b>Category</b>	Scan3dControl
<b>Interface</b>	IString
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

File descriptor for ZA calibration data.

### 3.5.4 Scan3dCoordinateOffset

<b>Name</b>	Scan3dCoordinateOffset
<b>Category</b>	Scan3dControl
<b>Interface</b>	IFloat
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Offset to apply when converting raw range to meters.

### 3.5.5 Scan3dCoordinateScale

<b>Name</b>	Scan3dCoordinateScale
<b>Category</b>	Scan3dControl
<b>Interface</b>	IFloat
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	-

Scale to apply when converting raw range to meters.



### 3.5.6 Scan3dRangeSpan

<b>Name</b>	Scan3dRangeSpan
<b>Category</b>	Scan3dControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	Small, Standard, Large

Selects time-of-flight pulse settings for different spans of interest.

- **Small.** Small span (0.3m to 2.4m)
- **Standard.** Standard span (0.3m to 4.8m)
- **Large.** Large span (0.3m to 9.6m)

### 3.5.7 Scan3dSignalThresholdLower

<b>Name</b>	Scan3dSignalThresholdLower
<b>Category</b>	Scan3dControl
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	$\geq 0, \leq 0xFF$

Lower signal threshold setting.

### 3.5.8 Scan3dSignalThresholdMid

<b>Name</b>	Scan3dSignalThresholdMid
<b>Category</b>	Scan3dControl
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	$\geq 0, \leq 0xFF$

Signal middle saturation setting.

### 3.5.9 Scan3dSignalThresholdUpper

<b>Name</b>	Scan3dSignalThresholdUpper
<b>Category</b>	Scan3dControl
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Beginner
<b>Values</b>	$\geq 0, \leq 0xFF$

Signal upper saturation setting.

## 3.6 ChunkDataControl

### 3.6.1 ChunkComponentSelector

<b>Name</b>	ChunkComponentSelector
<b>Category</b>	ChunkDataControl
<b>Interface</b>	IEnumeration
<b>Access</b>	Read
<b>Unit</b>	-
<b>Visibility</b>	Expert
<b>Values</b>	Intensity, Range, PointCloudMultiplierX, PointCloudMultiplierY, PointCloudMultiplierZ

Selects the Component from which to retrieve data from.

- **Intensity.** The image data is the intensity component (active IR).
- **Range.** The image data is the range component (distance or depth).
- **PointCloudMultiplierX.** The image data is the point cloud multiplier X component.
- **PointCloudMultiplierY.** The image data is the point cloud multiplier Y component.
- **PointCloudMultiplierZ.** The image data is the point cloud multiplier Z component.

## 3.7 GigEVision

### 3.7.1 GevSCPSDoNotFragment

<b>Name</b>	GevSCPSDoNotFragment
<b>Category</b>	GigEVision
<b>Interface</b>	IBoolean
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Guru
<b>Values</b>	-

The state of this feature is copied into the "do not fragment" bit of IP header of each stream packet. It can be used by the application to prevent IP fragmentation of packets on the stream channel.

### 3.7.2 GevSCPSPacketSize

<b>Name</b>	GevSCPSPacketSize
<b>Category</b>	GigEVision
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	B
<b>Visibility</b>	Expert
<b>Values</b>	$\geq 46, \leq 65535$

This GigE Vision specific feature corresponds to DeviceStream-ChannelPacketSize and should be kept in sync with it. It specifies the stream packet size, in bytes, to send on the selected channel for a GVSP transmitter or specifies the maximum packet size supported by a GVSP receiver.

## 3.8 TransportLayerControl

### 3.8.1 PayloadSize

<b>Name</b>	PayloadSize
<b>Category</b>	TransportLayerControl
<b>Interface</b>	IInteger
<b>Access</b>	Read
<b>Unit</b>	B
<b>Visibility</b>	Expert
<b>Values</b>	-

Provides the number of bytes transferred for each image or chunk on the stream channel. This includes any end-of-line, end-of-frame statistics or other stamp data. This is the total size of data payload for a data block.

## 3.9 Root

### 3.9.1 TLParamsLocked

<b>Name</b>	TLParamsLocked
<b>Category</b>	Root
<b>Interface</b>	IInteger
<b>Access</b>	Read/Write
<b>Unit</b>	-
<b>Visibility</b>	Invisible
<b>Values</b>	-

Used by the Transport Layer to prevent critical features from changing during acquisition.

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## 4 Document History

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Date	Version	Changelog
18.12.2016	0.9.0	Internal release
29.01.2017	1.0.0	First release
11.04.2017	1.2.0	Updated to 1.2 firmware release

Manual Build: 9d8f6d619e940b5869e39294c4258621adc36dfe