

BBVKxxx

Machine Vision Camera



Interface Description

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1. Introduction

This document describes the commands and the supported features of the GigEInterface for the Machine Vision Camera BBVK.

GigE Vision is an industrial standard which allows the integration of 2D-/3D Sensors, Smart Cameras and also Machine Vision Cameras. The Machine Vision Camera acts as GigE Vision server and a GigE Vision compatible software act as client.

2. GigE Vision Interface

2.1 Continuous Acquisition with FrameBurstStart

A burst of frames is defined as a capture of a group of one or many frames within an acquisition. This can be achieved with Continuous acquisition mode as below. Note that when [AcquisitionStop](#) is called, the current frame will need to be finished.

Command	Description
AcquisitionMode	Specifies the acquisition mode of the current device. It helps determine the number of frames to acquire during each acquisition sequence.
AcquisitionStart	Start the acquisition sequence for the current device.
AcquisitionStop	the acquisition sequence for the current device.
AcquisitionFrameCount	This feature specifies the number of frames to be acquired under Multi-Frame AcquisitionMode.
AcquisitionBurstFrameCount	This parameter is ignored if AcquisitionMode is set to SingleFrame. This feature is also constrained by AcquisitionFrameCount if AcquisitionMode is MultiFrame.
AcquisitionFrameRate	Specifies the frequency in which frames are acquired. Note that Trigger-Mode must be off for this parameter to take effect.
AcquisitionFrameRateEnable	Controls if the AcquisitionFrameRate feature is writable and used to control the acquisition rate.
AcquisitionLineRate	Controls the rate (in Hertz) at which the Lines in a Frame are captured.
TriggerSelector	This feature selects the specific trigger type to configure.
TriggerMode	Controls the On/Off status of the current trigger.
TriggerSoftware	Executing this will generate a software trigger signal. Note that current TriggerSource must be set to Software.
TriggerSource	This feature specifies the source of the trigger. It can be a software internal signal of a physical input hardware signal.
TriggerActivation	This feature specifies the state in which trigger is activated.
TriggerOverlap	Specifies the type of trigger overlap permitted with the previous frame or line. This defines when a valid trigger will be accepted (or latched) for a new frame or a new line.
TriggerLatency	Enables low latency trigger mode.

Command	Description
TriggerDelay	Specifies the delay in microseconds (us) to apply after the trigger reception before activating it.
TriggerArmed	Specifies whether the trigger is armed. If the trigger is not armed, triggers will be ignored.
ExposureTime	Controls the device exposure time in microseconds (us).
ExposureTimeRaw	Reports the device raw exposure time value.
ShortExposureEnable	Sets to Short Exposure Mode.
ExposureAuto	Sets the automatic exposure mode.
TargetBrightness	Sets the target brightness in 8-bit.
ExposureAutoAlgorithm	Controls the auto exposure algorithm.
ExposureAutoDamping	Controls the auto exposure damping factor in percent. Bigger values converge faster but have higher chance of oscillating.
ExposureAutoDampingRaw	Controls the auto exposure damping factor raw value. Bigger values converge faster but have higher chance of oscillating.
CalculatedMedian	Reports the current image exposure median value.
CalculatedMean	Reports the current image exposure average value.
AutoExposureAOI	Category for auto exposure AOI features.

2.2 Auto Exposure AOI

Command	Description
AutoExposureAOIEnable	Controls auto exposure AOI enable (1) or disable (0).
AutoExposureAOIWidth	Controls auto exposure AOI width relative to user AOI.
AutoExposureAOIHeight	Controls auto exposure AOI height relative to user AOI.
AutoExposureAOIOffsetX	Controls auto exposure AOI offset X relative to user AOI.
AutoExposureAOIOffsetY	Controls auto exposure AOI offset Y relative to user AOI.

2.3 Action Control

Command	Description
ActionUnconditionalMode	Enables the unconditional action command mode where action commands are processed even when the primary control channel is closed.
ActionQueueSize	Indicates the size of the scheduled action commands queue.
ActionDeviceKey	Provides the device key that allows the device to check the validity of action commands.
ActionSelector	Selects to which Action Signal further Action settings apply.
ActionGroupKey	Provides the key that the device will use to validate the action on reception of the action protocol message.

Command	Description
ActionGroupMask	Provides the mask that the device will use to validate the action on reception of the action protocol message.

2.4 Analog Control

Analog control contains features that describe how to influence the analog features of an image, such as gain, black level and gamma. Features related to white balance are not available on monochrome cameras.

Command	Description
GainSelector	Selects which Gain is controlled by the various Gain features.
Gain	Controls the selected Gain as an absolute physical value.
GainRaw	Reports the gain raw value.
GainAuto	Sets the automatic gain control mode.
BlackLevelSelector	Selects which BlackLevel is controlled by the various Black Level features.
BlackLevel	Controls the BlackLevel as an absolute physical value.
BlackLevelRaw	Controls the raw BlackLevel value.
BalanceRatioSelector	Selects which BalanceRatio is controlled by the various Balance Ratio features.
BalanceRatio	Controls the selected BalanceRatio as an absolute physical value. This is an amplification factor applied to the video signal.
BalanceWhiteAuto	Controls the mode for automatic white balancing between the color channels. The white balancing ratios are automatically adjusted.
BalanceWhiteEnable	Activates balance white features.
BalanceWhiteAutoAnchorSelector	Controls which type of statistics are used for BalanceWhiteAuto.
AwbWhitePatchEnable	Controls if the white patch algorithm is used for BalanceWhiteAuto.
AwbStatsFrameCount	Controls how many frames are used for collecting statistics for BalanceWhiteAuto.
GammaEnable GammaEnable	Controls the selected balance ratio as an absolute physical value. This is an amplification factor applied to the video signal.
Gamma	Controls the gamma correction of pixel intensity.

2.5 Chunk Data Control

Command	Description
ChunkModeActive	Activates the inclusion of Chunk data in the payload of the image.
ChunkSelector	Selects which Chunk to enable or control.
ChunkEnable	Enables the inclusion of the selected Chunk data in the payload of the image.
ChunkCRC	CRC chunk data.
ChunkPixelFormat	Chunk Pixel Format chunk data.
ChunkWidth	Chunk Width chunk data.
ChunkHeight	Chunk Height chunk data.
ChunkOffsetX	Chunk Offset X chunk data.
ChunkOffsetY	Chunk Offset Y chunk data.
ChunkPixelDynamicRangeMin	Chunk Pixel Dynamic Range Min chunk data.
ChunkPixelDynamicRangeMax	Chunk Pixel Dynamic Range Max chunk data.
ChunkGain	Chunk Gain chunk data.
ChunkBlackLevel	Chunk Black Level chunk data.
ChunkExposureTime	Chunk Exposure Time chunk data.

2.6 Color Transformation Control

Color Transformation Control contains features that describe how to color transformation features of an image, such as RGB to YUV conversion. This feature is not available on monochrome cameras.

Command	Description
ColorTransformationEnable	Controls if the selected color transformation module is activated.
ColorTransformationSelector	Selects which Color Transformation module is controlled by the various Color Transformation features.
ColorTransformationValueSelector	Selects the Gain factor or Offset of the Transformation matrix to access in the selected Color Transformation module.
ColorTransformationValue	Represents the value of the selected Gain factor or Offset inside the Transformation matrix.

2.7 Defect Correction Control

Command	Description
DefectCorrectionEnable	Activates the defect correction feature.
DefectCorrectionCount	The number of defect-corrected pixels.
DefectCorrectionIndex	The index of the defect corrected pixel to access.
DefectCorrectionPositionX	The column index of the defect corrected pixel selected by DefectCorrectionIndex.
DefectCorrectionPositionY	The row index of the defect corrected pixel selected by DefectCorrectionIndex.
DefectCorrectionGetNewDefect	Get a new defect corrected pixel to be entered.
DefectCorrectionApply	Apply the new defect corrected pixel.
DefectCorrectionRemove	Remove the defect corrected pixel selected by DefectCorrectionIndex.
DefectCorrectionSave	Save the defect corrected pixels to non-volatile memory.
DefectCorrectionRestoreDefault	Reset the defect correction to factory default.

2.8 Device Control

Device Control contains features that provide information of the capabilities of the device. There are also features that describe the particular device in detail. These features can be used in applications to query the capabilities of the device and report them to the end user if needed.

Below is a list of the available features that are contained in the specific category.

Command	Description
DeviceType	Returns the device type.
DeviceScanType	Scan type of the sensor of the device.
DeviceVendorName	Name of the manufacturer of the device.
DeviceModelName	Model of the device.
DeviceFamilyName	Identifier of the product family of the device.
DeviceManufacturerInfo	Provides additional information from the vendor about the device.
DeviceVersion	Version of the device.
DeviceFirmwareVersion	Version of the firmware in the device.
DeviceSerialNumber	Device's unique serial number.
DeviceUserID	A device ID string that is user-programmable.
DeviceSFNCVersionMajor	Major version of the Standard Features Naming Convention (SFNC) that was used to create the device's GenICam XML.
DeviceSFNCVersionMinor	Minor version of the Standard Features Naming Convention (SFNC) that was used to create the device's GenICam XML.
DeviceSFNCVersionSubMinor	Sub minor version of the Standard Features Naming Convention (SFNC) that was used to create the device's GenICam XML.

Command	Description
DeviceManifestEntrySelector	Manifest entry selector.
DeviceManifestXMLMajorVersion	Indicates the major version number of the GenICam XML file of the selected manifest entry.
DeviceManifestXMLMinorVersion	Indicates the minor version number of the GenICam XML file of the selected manifest entry.
DeviceManifestXMLSubMinorVersion	Indicates the sub minor version number of the GenICam XML file of the selected manifest entry.
DeviceManifestSchemaMajorVersion	Indicates the major version number of the schema file of the selected manifest entry.
DeviceManifestSchemaMinorVersion	Indicates the minor version number of the schema file of the selected manifest entry.
DeviceManifestPrimaryURL	Indicates the first URL to the GenICam XML device description file of the selected manifest entry.
DeviceManifestSecondaryURL	Indicates the second URL to the GenICam XML device description file of the selected manifest entry.
DeviceTLType	Transport Layer type of the device.
DeviceTLVersionMajor	Major version of the Transport Layer of the device.
DeviceTLVersionMinor	Minor version of the Transport Layer of the device.
DeviceTLVersionSubMinor	Sub minor version of the Transport Layer of the device.
DeviceMaxThroughput	Maximum bandwidth of the data that can be streamed out of the device.
DeviceLinkSelector	Selects which Link of the device to control. In general, the device only has one link.
DeviceLinkSpeed	Indicates the speed of transmission negotiated on the specified Link selected by DeviceLinkSelector.
DeviceLinkThroughputLimitMode	Controls if the DeviceLinkThroughputLimit is active.
DeviceLinkThroughputLimit	Limits the maximum bandwidth of the data that will be streamed out by the device on the selected Link.
DeviceLinkThroughputReserve	Allocates the maximum percentage of bandwidth reserved for re-transmissions.
DeviceLinkHeartbeatMode	Activate or deactivate the selected Link's heartbeat.
DeviceLinkHeartbeatTimeout	Controls the current heartbeat timeout of the specific Link in microseconds.
DeviceLinkCommandTimeout	Indicates the command timeout of the specified Link in microseconds.
DeviceStreamChannelCount	Indicates the number of stream channels supported by the device.
DeviceStreamChannelSelector	Selects the stream channel to control.
DeviceStreamChannelType	Reports the type of the stream channel.
DeviceStreamChannelEndianness	Endianness of multi-byte pixel data for this stream.

Command	Description
DeviceStreamChannelPacketSize	Specifies the stream packet size, in bytes, to send on the selected channel for the device.
DeviceEventChannelCount	Indicates the number of event channels supported by the device.
DeviceCharacterSet	Character set used by all the strings of the device.
DeviceReset	Resets the device to its power up state.
DeviceFactoryReset	Resets device to factory defaults.
FirmwareUpdate	Starts a firmware update.
DeviceFeaturePersistenceStart	Indicate to the device and GenICam XML to get ready for persisting of all streamable features.
DeviceFeaturePersistenceEnd	Indicate to the device the end of feature persistence.
DeviceRegistersStreamingStart	Prepare the device for registers streaming without checking for consistency.
DeviceRegistersStreamingEnd	Announce the end of registers streaming.
DeviceIndicatorMode	Controls the behavior of the indicator LED showing the status of the Device.
DeviceTemperatureSelector	Selects the temperature sensor to read from.
DeviceTemperature	Device temperature in degrees Celsius.
DevicePressure	The internal device pressure in kilopascals.
DevicePower	Device power in Watts.
DeviceClockSelector	Selects the clock frequency to access from the device.
DeviceClockFrequency	Returns the frequency of the selected Clock.
Timestamp	Reports the current value of the device timestamp counter.
TimestampReset	Resets the current value of the device timestamp counter. Executing this command causes the timestamp counter to restart automatically.
TimestampLatch	Latches the current timestamp counter into TimestampLatchValue.
TimestampLatchValue	Returns the latched value of the timestamp counter.
DeviceUpTime	Time the device has been powered in seconds.
LinkUpTime	Time the device link has been established in seconds.

2.9 Digital IO Control

Command	Description
LineSelector	Selects the physical line (or pin) of the external device connector to configure.
LineMode	Controls if the physical Line is used to Input or Output a signal.
LineInverter	Controls the inversion of the signal of the selected input or output Line.
LineStatus	Returns the current status of the selected input or output Line.
LineStatusAll	Returns the current status of all available Line signals at time of polling.
LineSource	Selects which internal acquisition or I/O source signal to output on the selected Line. LineMode must be set to Output.
LineFormat	Controls the current electrical format of the selected physical input or output Line.
LineFilterSelector	Selects the input filter to configure. LineMode must be Input.
LineFilterWidth	Width of the filter in microseconds.
VoltageExternalEnable	Controls if the external voltage is enabled.
UserOutputSelector	Selects which bit of the User Output register will be set by UserOutputValue.
UserOutputValue	Sets the value of the bit selected by UserOutputSelector.
UserOutputValueAll	Sets the value of all the bits of the User Output register. It is subject to the UserOutputValueAllMask.
UserOutputValueAllMask	Sets the write mask to apply to the value specified by UserOutputValueAll before writing it in the User Output register. If the UserOutputValueAllMask feature is present, setting the user Output register using UserOutputValueAll will only change the bits that have a corresponding bit in the mask set to one.

2.10 Event Control

Event Control has the device inform the host application that an event has occurred. Below is a list of the available features that are contained in the specific category.

Command	Description
EventSelector	Selects which Event to signal to the host application.
EventNotification	Activate or deactivate the notification to the host application of the occurrence of the selected Event.
EventDestinationAddress	Controls the destination IP address for events.
EventExposureStartData	Category that contains all the data features related to the ExposureStart Event.
EventExposureEndData	Category that contains all the data features related to the ExposureEnd Event.
EventTestData	Category that contains all the data features related to the Event Test generated using the TestEventGenerate command.

2.11 Event Exposure End Data

Command	Description
EventExposureEnd	Returns the unique identifier of the ExposureEnd type of Event.
EventExposureEndTimestamp	Returns the Timestamp of the ExposureEnd Event.
EventExposureEndFrameID	Returns the unique Identifier of the Frame (or image) that generated the ExposureEnd Event.

2.12 Event Exposure Start Data

Command	Description
EventExposureStart	Returns the unique identifier of the ExposureStart type of Event.
EventExposureStartTimestamp	Returns the Timestamp of the ExposureStart Event.
EventExposureStartFrameID	Returns the unique Identifier of the Frame (or image) that generated the ExposureStart Event.

2.13 Event Test Data

Command	Description
EventTest	Returns the unique identifier of the Event Test type of event generated using the TestEventGenerate command.
EventTestTimestamp	Returns the Timestamp of the Event Test event.

2.14 File Access Control

Command	Description
FileSelector	Selects the target file in the device.
FileOperationSelector	Selects the target operation for the selected file in the device. This operation is executed when the FileOperationExecute feature is called.
FileOperationExecute	Executes the operation selected by FileOperationSelector on the selected file.
FileOpenMode	Selects the access mode in which a file is opened in the device.
FileAccessBuffer	Defines the intermediate access buffer that allows the exchange of data between the device file storage and the application
FileAccessOffset	Controls the offset of the mapping between the device file storage and the FileAccessBuffer.
FileAccessLength	Controls the length of the mapping between the device file storage and the FileAccessBuffer.
FileOperationStatus	Represents the FileOperationExecute status.
FileOperationResult	Represents the file operation result. For Read or Write operations, the number of successfully read/written bytes is returned.
FileSize	Represents the size of the selected file in bytes.
FileStorageSize	Represents the total size of the file storage selected by FileSelector in bytes.
FileStorageUsedSize	Represents the used size of the file storage selected by FileSelector in bytes.
FileStorageFreeSize	Represents the free size of the file storage selected by FileSelector in bytes.

2.15 I2C Access Control

Command	Description
I2COperationSelector	Selects the target operation for the I2C communication on the device. This operation is executed when the I2COperationExecute feature is called.
I2COperationExecute	Executes the operations selected by I2COperationSelector on the I2C communication.
I2CAccessBuffer	Defines the intermediate access buffer that allows the exchange of data between the device's I2C communication and the application.
I2CRegisterAddress	Controls the register address for the operation selected by the I2COperationSelector.
I2CRegisterAddressLength	Controls the register address length used for the I2C communication.
I2CAccessLength	Controls the number of bytes to transfer to or from the I2CAccessBuffer.
I2COperationStatus	Represents the I2COperationExecute status.
I2COperationResult	Represents the number of successfully read/written bytes for the I2C operation.

Command	Description
I2CSlaveDeviceAddress	Controls the device address for the slave.
I2CSlaveDeviceAddressLength	Controls the slave device address length used for the I2C communication.
I2CSclSource	Selects the physical line to use for the I2C SCL source.
I2CSdaSource	Selects the physical line to use for the I2C SDA source.

2.16 Image Format Control

Command	Description
PixelFormat	Format of the pixels provided by the device.
PixelFormatMappingSelector	Selects the pixel format mapping.
PixelFormatMappingEnable	Enables the pixel format mapping selected by PixelFormatMappingSelector.
PixelColorFilter	Type of color filter that is applied to the image.
IspBayerPattern	Reports the image Bayer pattern in the ISP.
SensorWidth	Effective width of the sensor in pixels.
SensorHeight	Effective height of the sensor in pixels.
SensorShutterMode	Specifies the shutter mode.
WidthMax	Maximum width of the image in pixels.
HeightMax	Maximum height of the image in pixels.
PhysicalPixelSize	Reports the physical size of an individual pixel on the sensor.
ADCBitDepth	Reports the bit depth of the sensor's ADC.
ImagerWidth	Width of the sensor image after binning and decimation.
ImagerHeight	Height of the sensor image after binning and decimation.
ImagerOffsetX	Horizontal offset from the origin of the sensor region.
ImagerOffsetY	Vertical offset from the origin of the sensor region.
Width	Width of the image provided by the device in pixels.
Height	Height of the image provided by the device in pixels.
OffsetX	Horizontal offset from the origin to the region of interest in pixels.
OffsetY	Vertical offset from the origin to the region of interest in pixels.
PixelSize	Total size in bits of a pixel of the image.
ReverseX	Flip horizontally the image sent by the device.
ReverseY	Flip vertically the image sent by the device.
PixelDynamicRangeMin	Minimum value that can be returned during the digitization process.
PixelDynamicRangeMax	Maximum value that can be returned during the digitization process.
BinningSelector	Selects which binning engine is controlled by the BinningHorizontal and BinningVertical features.
BinningHorizontalMode	Selects how to combine the horizontal pixels together.

Command	Description
BinningVerticalMode	Selects how to combine the horizontal pixels together.
BinningHorizontal	Number of horizontal pixels to combine together. This reduces the horizontal resolution (width) of the image. A value of 1 indicates that no horizontal binning is performed by the camera.
BinningVerticalMode	Number of vertical pixels to combine together. This reduces the vertical resolution (height) of the image. A value of 1 indicates that no vertical binning is performed by the camera.
DecimationSelector	Selects which decimation engine is controlled by the DecimationHorizontal and DecimationVertical features.
DecimationHorizontalMode	Selects how to decimate the horizontal pixels.
DecimationVerticalMode	Selects how to decimate the vertical pixels.
DecimationHorizontal	Number of horizontal pixels to decimate. This reduces the horizontal resolution (width) of the image. A value of 1 indicates that no horizontal decimation is performed by the camera.
DecimationVertical	Number of vertical pixels to decimate. This reduces the vertical resolution (height) of the image. A value of 1 indicates that no vertical decimation is performed by the camera.
TestPattern	Selects the type of test pattern that is generated by the device as image source.

2.17 LUT Control

Command	Description
LUTEnable	Activates the saved LUT.
LUTSelector	Selects which LUT to control.
LUTIndex	Control the index (offset) of the coefficient to access in the selected LUT.
LUTValue	Access the value at entry LUT Index of the LUT selected by LUT Selector.
LUTValueAll	Accesses all the LUT coefficients in a single access without using individual LUT Index
LUTSave	Save the values set through LUT Values or LUT Value All.
LUTReset	Reset the LUT Values to be linear mapping.

2.18 Serial Access Control

Command	Description
SerialOperationSelector	Selects the target operation for the serial communication on the device. This operation is executed when the SerialOperationExecute feature is called.
SerialOperationExecute	Executes the operation selected by SerialOperationSelector on the serial communication.
SerialAccessBuffer	Defines the intermediate access buffer that allows the exchange of data between the device's serial communication and the applicatio
SerialAccessLength	Controls the number of bytes to transfer to or from the SerialAccessBuffer
SerialOperationStatus	Represents the SerialOperationExecute status
SerialOperationResult	Represents the Serial operation result. For Read or Write operations, the number of successfully read/written bytes is returned
SerialReceivedSize	Represents the number of bytes received from or transfered to the serial communication
SerialReceiveSource	Selects the physical line to use for the serial communication receive source.
SerialBaudRate	This feature controls the baud rate used for serial communication.
SerialParity	This feature controls the parity used for serial communication.
SerialStopBits	This feature controls the number of stop bits used for serial communication.
SerialDataBits	This feature controls the number of data bits used for serial communication.
SerialFlowControl	This feature controls the flow control used for serial communication.

2.19 Test Control

Command	Description
TestPendingAck	Tests the device's pending acknowledge feature.
TestEventGenerate	Generates a Test Event.
TestMode	None

2.20 Transfer Control

Transfer Control allows the device to accumulate on the on-camera buffer in a queue. The data stored in the queue, referred to as blocks, can be transmitted to the host application at a later time. The host application will be able to request the device transmit one or more block. By default, this control is disabled on the TRI050S and acquired images are automatically transmitted.

Command	Description
TransferSelector	Selects which stream transfers are currently controlled by the selected Transfer features.
TransferControlMode	Selects the control method for the transfers.
TransferOperationMode	Selects the operation mode of the transfer.
TransferBlockCount	Specifies the number of data Blocks that the device should stream before stopping.
TransferQueueMaxBlockCount	Controls the maximum number of data blocks that can be stored in the block queue of the selected stream.
TransferQueueCurrentBlockCount	Returns the number of Block(s) currently in the transfer queue.
TransferQueueMode	Specifies the operation mode of the transfer queue.
TransferStart	Starts the streaming of data blocks out of the device.
TransferStop	Stops the streaming of data Block(s).
TransferAbort	Immediately abort the streaming of data block(s).
TransferPause	Pauses the streaming of data Block(s).
TransferResume	Resumes a data Blocks streaming that was previously paused by a TransferPause command.
TransferStatusSelector	Selects which status of the transfer module to read.
TransferStatus	Reads the status of the Transfer module signal selected by TransferStatusSelector.

2.21 Transport Layer Control

Transport Layer Control includes a list of features related to the GigE Vision bootstrap registers and GigE Vision transport medium.

Command	Description
PayloadSize	Provides the number of bytes transferred for each image or chunk on the stream channel.
GigEVision	Category that contains the features pertaining to the GigE Vision transport layer of the device.
PtpControl	Category that contains the features related to the Precision Time Protocol (PTP) of the device.
ReceivedPacketResendCount	Returns the number of received packet resend commands.
ValidPacketResendCount	Returns the number of valid packet resends handled by the device.
UnavailablePacketResendCount	Returns the number of unavailable packet resends handled by the device.

2.22 GigE Vision

Command	Description
GevPhysicalLinkConfiguration	Controls the principal physical link configuration to use on next restart/power-up of the device.
GevCurrentPhysicalLinkConfiguration	Indicates the current physical link configuration of the device.
GevSupportedOptionSelector	Selects the GEV option to interrogate for existing support
GevSupportedOption	Returns if the selected GEV option is supported
GevInterfaceSelector	Selects which logical link to control
GevMACAddress	MAC address of the logical link.
GevPAUSEFrameReception	Controls whether incoming PAUSE Frames are handled on the given logical link.
GevPAUSEFrameTransmission	Controls whether PAUSE Frames can be generated on the given logical link.
GevCurrentIPConfigurationLLA	Controls whether the Link Local Address IP configuration scheme is activated on the given logical link
GevCurrentIPConfigurationDHCP	Controls whether the DHCP IP configuration scheme is activated on the given logical link.
GevCurrentIPConfigurationPersistentIP	Controls whether the Persistent IP configuration scheme is activated on the given logical link.
GevCurrentIPAddress	Reports the IP address for the given logical link.
GevCurrentSubnetMask	Reports the subnet mask of the given logical link.
GevCurrentDefaultGateway	Reports the default gateway IP address to be used on the given logical link.
GevIPConfigurationStatus	Reports the current IP configuration status.
GevPersistentIPAddress	Controls the Persistent IP address for this logical link.
GevPersistentSubnetMask	Controls the persistent subnet mask associated with the Persistent IP address on this logical link.
GevPersistentDefaultGateway	Controls the persistent default gateway for this logical link.
GevDiscoveryAckDelay	Indicates the maximum randomized delay the device will wait to acknowledge a discovery command.
GevGVCPExtendedStatusCodesSelector	Selects the GigE Vision version to control extended status codes for.
GevGVCPExtendedStatusCodes	Enables the generation of extended status codes.
GevGVCPPendingAck	Enables the generation of PENDING_ACK.
GevPrimaryApplicationSwitchoverKey	Controls the key to use to authenticate primary application switchover requests.
GevGVSPExtendedIDMode	Enables the extended IDs mode.
GevCCP	Controls the device access privilege of an application
GevPrimaryApplicationSocket	Returns the UDP source port of the primary application.
GevPrimaryApplicationIPAddress	Returns the address of the primary application.

Command	Description
GevMCPHostPort	Controls the port to which the device must send messages.
GevMCDA	Controls the destination IP address for the message channel.
GevMCTT	Provides the transmission timeout value.
GevMCRC	Controls the number of retransmissions allowed when a message channel message times out.
GevMCSP	This feature indicates the source port for the message channel.
GevStreamChannelSelector	Selects the stream channel to control.
GevSCPIInterfaceIndex	Index of the logical link to use.
GevSCPHostPort	Controls the port of the selected channel to which a GVSP transmitter must send data stream or the port from which a GVSP receiver may receive data stream.
GevSCPSFireTestPacket	Sends a test packet. When this feature is set, the device will fire one test packet.
GevSCPSDoNotFragment	The state of this feature is copied into the 'do not fragment' bit of IP header of each stream packet.
GevSCPSPacketSize	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.
GevSCPD	Controls the delay (in GEV timestamp counter unit) to insert between each packet for this stream channel.
GevSCDA	Controls the destination IP address of the selected stream channel to which a GVSP transmitter must send data stream or the destination IP address from which a GVSP receiver may receive data stream.
GevSCSP	Indicates the source port of the stream channel.

2.23 PTP Control

Command	Description
PtpEnable	Enables the Precision Time Protocol (PTP).
PtpStatus	Returns the latched state of the PTP clock.
PtpSlaveOnly	Enables slave only operation of the PTP.
PtpClockAccuracy	Indicates the expected accuracy of the device PTP clock when it is the grandmaster, or in the event it becomes the grandmaster.
PtpServoStatus	Returns the latched state of the clock servo.
PtpDataSet	Reports the current value of the PTP's timestamp.
PtpDataSetLatch	Latches the current values from the device's PTP clock data set.
PtpDataSetLatchValue	Returns the latched value of the PTP clock.

Command	Description
PtpOffsetFromMaster	Returns the latched offset from the PTP master clock in nanoseconds. If PtpOffsetFromMaster returns -1 then the synchronization has not started
PtpClockID	Returns the latched clock ID of the PTP device.
PtpParentClockID	Returns the latched parent clock ID of the PTP device.
PtpGrandmasterClockID	Returns the latched grandmaster clock ID of the PTP device.

2.24 User Set Control

Command	Description
UserSetSelector	Selects the feature User Set to load, save, or configure.
UserSetLoad	Loads the User Set specified by UserSetSelector to the device and makes it active.
UserSetSave	Save the User Set specified by UserSetSelector to the non-volatile memory of the device.
UserSetDefault	Selects the feature User Set to load and make active by default when the device is reset.
UserSetFeatureSelector	Selects which individual User Set feature to control.
UserSetFeatureEnable	Enables the selected feature and make it active in all the User Sets.

3. Change Index of Operating Instruction

Version	Date	Description/Changes	Compatibility
1.0.0	07.10.2024	Initial version of the operating instructions of BBVK Machine Vision Cameras	Firmware MVC 1.0.0