

Telegram Listing

Visionary-T Mini CX



Described product

Visionary-T Mini CX

Manufacturer

SICK AG
Erwin-Sick-Str. 1
79183 Waldkirch

Germany

Legal information

This work is protected by copyright. Any rights derived from the copyright shall be reserved for SICK AG. Reproduction of this document or parts of this document is only permissible within the limits of the legal determination of Copyright Law. Any modification, expurgation or translation of this document is prohibited without the express written permission of SICK AG.

The trademarks stated in this document are the property of their respective owner.

© SICK AG. All rights reserved.

Original document

This document is an original document of SICK AG.



Table Of Contents

1. Disclaimer	1
2. General	2
2.1. Introduction	2
2.2. User Level	2
2.3. Variables	2
2.4. Methods	2
2.5. Events	2
2.6. Datatypes	2
3. Measurement data	4
3.1. Introduction	4
3.2. Blob format	5
3.3. Data Segments	6
3.3.1. XML metadata	6
3.3.2. Binary data	6
3.3.3. XML overlays	7
4. Interfaces	8
4.1. General Access	8
4.1.1. SecureAuth	9
4.1.1.1. Method: <i>GetAccessMode</i>	9
4.1.1.2. Method: <i>SetUserLevel</i>	10
4.1.1.3. Method: <i>Run</i>	11
4.1.1.4. Method: <i>GetChallenge</i>	12
4.1.1.5. Method: <i>ChangePassword</i>	14
4.1.2. Ethernet Settings	16
4.1.2.1. Variable: <i>EtherAddressingMode</i>	16
4.1.2.2. Method: <i>EthernetUpdate</i>	17
4.1.2.3. Variable: <i>EtherLinkState</i>	18
4.1.2.4. Variable: <i>EtherMACAddress</i>	19
4.1.2.5. Variable: <i>EtherIPAddress</i>	20
4.1.2.6. Variable: <i>EtherIPMask</i>	21
4.1.2.7. Variable: <i>EtherIPGateAddress</i>	23
4.1.2.8. Variable: <i>EtherIPAddressDHCP</i>	24
4.1.2.9. Variable: <i>EtherIPMaskDHCP</i>	25
4.1.2.10. Variable: <i>EtherIPGateAddressDHCP</i>	26
4.1.2.11. Variable: <i>EtherDHCPFallback</i>	27
4.1.2.12. Variable: <i>EtherIPSpeedDuplex</i>	28



4.1.2.13. Variable: <i>EtherIPSpeedDuplexNegotiated</i>	30
4.1.3. Ethernet Protocol Settings	32
4.1.3.1. Variable: <i>BlobTransportProtocolAPI</i>	32
4.1.3.2. Variable: <i>BlobTcpPortAPI</i>	33
4.1.3.3. Variable: <i>BlobUdpAutoTransmit</i>	34
4.1.3.4. Variable: <i>BlobUdpReceiverIPAPI</i>	36
4.1.3.5. Variable: <i>BlobUdpReceiverPortAPI</i>	37
4.1.3.6. Variable: <i>BlobUdpControlPortAPI</i>	38
4.1.3.7. Variable: <i>BlobUdpHeaderEnabled</i>	40
4.1.3.8. Variable: <i>BlobUdpHeartbeatInterval</i>	41
4.1.3.9. Variable: <i>BlobUdpMaxPacketSizeAPI</i>	42
4.1.3.10. Variable: <i>BlobUdpIdleTimeBetweenPacketsAPI</i>	44
4.1.3.11. Variable: <i>BlobUdpHeaderEnabled</i>	45
4.1.3.12. Variable: <i>BlobUdpFECEnabled</i>	47
4.1.4. Variable: <i>SCParamsChanged</i>	48
4.1.5. Method: <i>WriteEeprom</i>	49
4.1.6. Method: <i>RebootDevice</i>	50
4.1.7. Method: <i>LoadApplicationDefaults</i>	51
4.1.8. Method: <i>LoadFactoryDefaults</i>	52
4.2. System Health (Diagnostics)	53
4.2.1. Variable: <i>OpVoltageStatus</i>	53
4.2.2. Variable: <i>illuminationActive</i>	54
4.2.3. Variable: <i>humidity</i>	55
4.2.4. Variable: <i>DeviceTime</i>	56
4.2.5. Electrical	57
4.2.5.1. Variable: <i>ElectricalMonitoring</i>	57
4.2.5.2. Variable: <i>ElectricalLimits</i>	58
4.2.6. System Log	59
4.2.6.1. Variable: <i>EMsgInfo</i>	59
4.2.6.2. Variable: <i>EMsgWarning</i>	61
4.2.6.3. Variable: <i>EMsgError</i>	63
4.2.6.4. Variable: <i>EMsgFatal</i>	64
4.2.6.5. Variable: <i>PowerOnCnt</i>	66
4.2.6.6. Variable: <i>OpHours</i>	67
4.2.6.7. Variable: <i>DailyOpHours</i>	68
4.2.7. Temperature	69
4.2.7.1. Variable: <i>TempLevel</i>	69
4.2.7.2. Variable: <i>SysTemperatureCurrentValue</i>	70
4.2.7.3. Variable: <i>SysTemperatureWarningMargin</i>	71
4.2.7.4. Variable: <i>SysTemperatureErrorLimit</i>	72
4.2.7.5. Variable: <i>TemperatureNames</i>	73
4.2.7.6. Variable: <i>TemperatureValues</i>	74



4.2.8. Digital IO	76
4.2.8.1. Variable: digitalIOStatus	76
4.2.8.2. Variable: doutOverload	77
4.2.8.3. Variable: doutPinError	78
4.2.9. Service Information	80
4.2.9.1. Variable: DeviceIdent	80
4.2.9.2. Variable: LocationName	81
4.2.9.3. Variable: Manufacturer	82
4.2.9.4. Variable: FirmwareVersion	83
4.2.9.5. Variable: DeviceType	84
4.2.9.6. Variable: CidVersion	85
4.2.9.7. Variable: OrderNumber	86
4.2.9.8. Variable: SerialNumber	87
4.2.9.9. Variable: KernelVersion	88
4.2.9.10. Variable: BootloaderIdentification	89
4.2.9.11. Variable: FpgaBitstreamVersion	90
4.3. Frontend Settings	92
4.3.1. Mounting Settings	93
4.3.1.1. Variable: sensorPosition	93
4.3.1.2. Variable: sensorOrientation	94
4.3.1.3. Variable: cameraModel	95
4.3.1.4. Variable: cameraToWorldMatrix	98
4.3.2. Camera and Acquisition Controls	99
4.3.2.1. Variable: frontendMode	99
4.3.2.2. Method: PlayStart	100
4.3.2.3. Method: SingleStep	101
4.3.2.4. Method: PlayStop	102
4.3.2.5. Variable: enableCropping	103
4.3.2.6. Variable: croppingPositionX	104
4.3.2.7. Variable: croppingPositionY	105
4.3.2.8. Variable: croppingWidth	107
4.3.2.9. Variable: croppingHeight	108
4.3.2.10. Variable: binningOption	109
4.3.2.11. Variable: framePeriodUs	111
4.3.2.12. Variable: enableEdgeCorrection	112
4.3.2.13. Variable: lowerEdgeCorrectionThreshold	113
4.3.2.14. Variable: upperEdgeCorrectionThreshold	115
4.3.3. Filter Settings	117
4.3.3.1. Variable: enDepthMask	117
4.3.3.2. Variable: enableDistanceFilter	118
4.3.3.3. Variable: minDistanceThreshold	119
4.3.3.4. Variable: maxDistanceThreshold	121



4.3.3.5. Variable: enableIntensityFilter	122
4.3.3.6. Variable: minIntensityThreshold	123
4.3.3.7. Variable: maxIntensityThreshold	125
4.3.3.8. Variable: enableIsolatedPixelFilter	126
4.3.3.9. Variable: isolatedPixelDistanceThres	128
4.3.3.10. Variable: enableAmbiguityFilter	129
4.3.3.11. Variable: scaleAmbiguityFilter	130
4.3.3.12. Variable: enableRemissionFilter	132
4.3.3.13. Variable: lowerRemissionFilterThreshold	133
4.3.3.14. Variable: upperRemissionFilterThreshold	134
4.3.4. Time synchronisation	136
4.3.4.1. Variable: timeSynchronizationEnabled	136
4.3.4.2. Variable: timeSynchronizationOffset	137
4.3.4.3. Variable: timeSynchronizationFPS	138
4.3.4.4. Variable: timeSyncMode	140
4.3.4.5. NTP Client	142
4.3.4.5.1. Variable: ntpClientServerAddress	142
4.3.4.5.2. Variable: ntpClientServerPort	143
4.3.4.5.3. Variable: ntpClientTimeout	144
4.3.4.6. PTP	146
4.3.4.6.1. Variable: ptpMode	146
4.4. Digital IOs	148
4.4.1. Variable: IOValue	148
4.4.2. Variable: INOUT1_Function	149
4.4.3. Variable: INOUT2_Function	150
4.4.4. Variable: INOUT3_Function	151
4.4.5. Variable: INOUT4_Function	153
4.4.6. Variable: INOUT5_Function	154
4.4.7. Variable: INOUT6_Function	155
5. User Types	157
5.1. Type: CameraModel	157
5.2. Type: CidVersion	158
5.3. Type: ErrStructType	159
5.4. Type: ErrTimeType	160
5.5. Type: IOFunctionType	160
5.6. Type: Matrix3x3d	161
5.7. Type: Matrix4x4	162
5.8. Type: Matrix4x4d	162
5.9. Type: Matrix5x1d	162
5.10. Type: RotationVector3f	163
5.11. Type: ThreeLevels	163
5.12. Type: V3SIOsState	164



5.13. Type: Vector3	164
5.14. Type: V3SElectricalMonitoring	165
5.15. Type: V3SElectricalLimits	166
Index	167



Table Of Figures

Figure 1. Connections with the device	4
Figure 2. Streaming capabilities of the device	4
Figure 3. Blob structure overview	5
Figure 4. Items and description	5
Figure 5. Binary format: scans	6
Figure 6. Structure of the depthmap dataset	7



1. Disclaimer

This document contains detailed information about single telegrams which can be used to communicate with the device and configure it. Sending telegrams with malformed data or in improper order can harm the device. So it is highly recommended to use the provided API for unexperienced users!

The telegrams are not guaranteed to remain unchanged in other/newer firmware versions. This means, that if you are using the telegrams you take the responsibility to take care of changes introduced by firmware updates.

The CoLa protocol specifications allows referencing variables and methods by index - however, only access/invoke by name is available for this device!

When reading the CoLa specifications keep in mind that the device uses CoLa-2. For the calculation of the telegram checksum please refer to the provided python example.

The below linked repository contains a set of programming examples implemented in both C++ and Python. These examples are designed to illustrate the practical application of the methods and variables detailed in this document. They provide a comprehensive guide on how to perform read/write operations on these variables and how to effectively invoke the associated methods.

Programming samples: https://github.com/SICKAG/sick_visionary_samples.



2. General

2.1. Introduction

This document describes the functional interfaces of the Visionary-T Mini CX V3S105-1x device, 2.1.0.3341R. The Visionary-T Mini CX V3S105-1x device is a SOPAS device. SOPAS devices may have Variables, Methods and Events.

2.2. User Level

Whether a Variable can be written or a Method can be executed by a user depends on the least user level. Defined user levels are:

ID	Name	Description
0	Always (Run)	Always (Run)
1	Operator	Operator
2	Maintenance	Maintenance
3	Authorized Client	Authorized Client
4	Service	Service

Table 1: User Levels

2.3. Variables

Variables can always be read and can only be written by a user with sufficient user level.

2.4. Methods

Methods can be invoked by using certain parameters. The method will return with a structure of one or more return values. If a Method can be invoked depends on the least user level.

2.5. Events

Events can be registered and will then be fired by the device to the registered client. Most Events have parameters which are the data coming with the Event.

2.6. Datatypes

All items of the interface have certain data elements. These are the Variables itself, the parameters of Methods and Events and the return values of the Methods.

The structure of the data elements can be one of the following BasicType(s), Structures or Arrays.

Basic Type

Name	Description	Range of values
Bool	boolean	True(1), False(0)
USInt	unsigned short (8 bit)	(0..255)
UInt	unsigned int (16 bit)	(0..65535)
UDInt	unsigned double int (32 bit)	(0..4294967295)



Name	Description	Range of values
ULInt	unsigned long int (64 bit)	(0..18446744073709551616)
SInt	signed short (8 bit)	(-128..127)
Int	signed int (16 bit)	(-32768..32767)
DInt	signed double int (32 bit)	(-2147483648..2147483647)
LInt	signed long int (64 bit)	(-9223372036854775808..9223372036854775807)
Real	IEEE-754 single precision (32 bit) (float)	See specification in IEEE-754
LReal	IEEE-754 single precision (64 bit) (double)	See specification in IEEE-754
Enum8	short enumeration (8 bit)	certain values defined in a list of choices (0-255)
Enum16	short enumeration (16 bit)	certain values defined in a list of choices (0-65535)
String	array of visible characters (array of 8 bit)	a character = an USInt with values between 0x20..0xFF
FlexString	array of visible characters with preceding current length (UInt length) (array of 8 bit)	See description of String and FlexArray
Byte	bitset definition (8 bit). Detailed specification of bits UInt1..UInt16 = UInt (1..16 bit) Int1..Int16 = Int (1..16 bit) Enum1..Enum16 = Enum16 (1..16 bit) Bool = Bool (1 bit)	value is transferred as an array of USInt. See "XByte Serialisation" document for further details on bit ordering
Word	bitset definition (16 bit), see description of Byte	value is transferred as an array of USInt see "XByte Serialisation" document for further details on bit ordering.
DWord	bitset definition (32 bit), see description of Byte	value is transferred as an array of USInt see "XByte Serialisation" document for further details on bit ordering.
LWord	bitset definition (64 bit), see description of Byte	value is transferred as an array of USInt see "XByte Serialisation" document for further details on bit ordering.
XByte	bitset definition (8,16,24,32,... bit) see description of Byte	value is transferred as an array of USInt see "XByte Serialisation" document for further details on bit ordering.
SCont	bitset definition (8 bit). Detailed specification of bits UInt1..UInt16 = UInt (1..16 bit) Int1..Int16 = Int (1..16 bit) Enum1..Enum16 = Enum16 (1..16 bit) Bool = Bool (1 bit)	value is transferred as USInt.
Cont	bitset definition (16 bit), see description of SCont	value is transferred as UInt.
DCont	bitset definition (32 bit), see description of SCont	value is transferred as UInt.
LCont	bitset definition (64 bit), see description of SCont	value is transferred as UInt.

Table 2: Basic Datatypes

Struct

A structure is a sequence of further types. These types can be of a BasicType, Structs again or an Array.

Array

An Array is a repetition of a type. The length of the array is defined with each Array. The types can be of a BasicType, a Struct or an Array again (n- dimensional).

Flex Array

A FlexArray is a repetition of a type with a variable length. The maximum length of the array is defined with each FlexArray. The current length of the FlexArray is transferred as a UInt preceding the Array itself. The types can be of a BasicType, a Struct or an Array again (n- dimensional).

3. Measurement data

This chapter gathers all information about the used formats and issues with the data streaming.

3.1. Introduction

There are two types of data connections:

Streaming

The device sends out cyclic data; so called *blobs* (**binary large object s**).

Control

Channel for acyclic control messages (read variables from device, invoke methods on the device, ...).

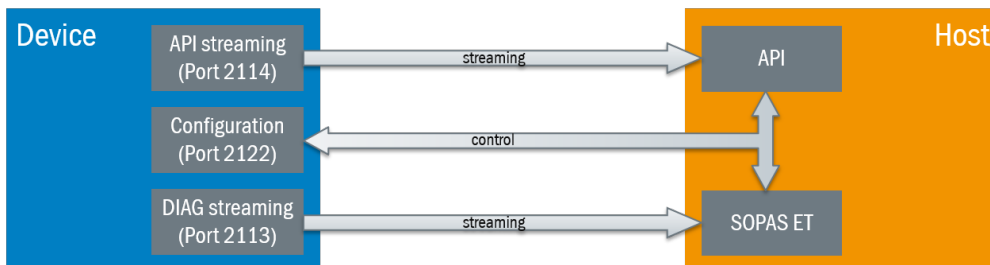


Figure 1. Connections with the device

The device provides a separation of the streaming into two channels via different ports.

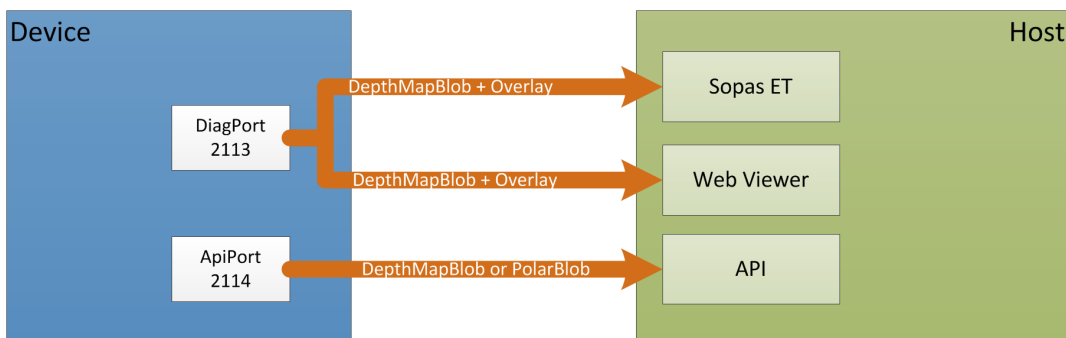


Figure 2. Streaming capabilities of the device

The diagnosis channel sends *depth map* frames containing distance, intensity and state maps. Those are complemented with visual overlays that support the diagnosis.

The API channel can be configured to send the intended data channels. Currently, only *depth map* data are supported.

The diagnostics data channel is used by Sopas ET. The ApiPort for the pure data transfer can be configured in the variable called BlobTcpPortAPI.

3.2. Blob format

A blob is formatted in a specific way that gathers all the needed information – see figure below:

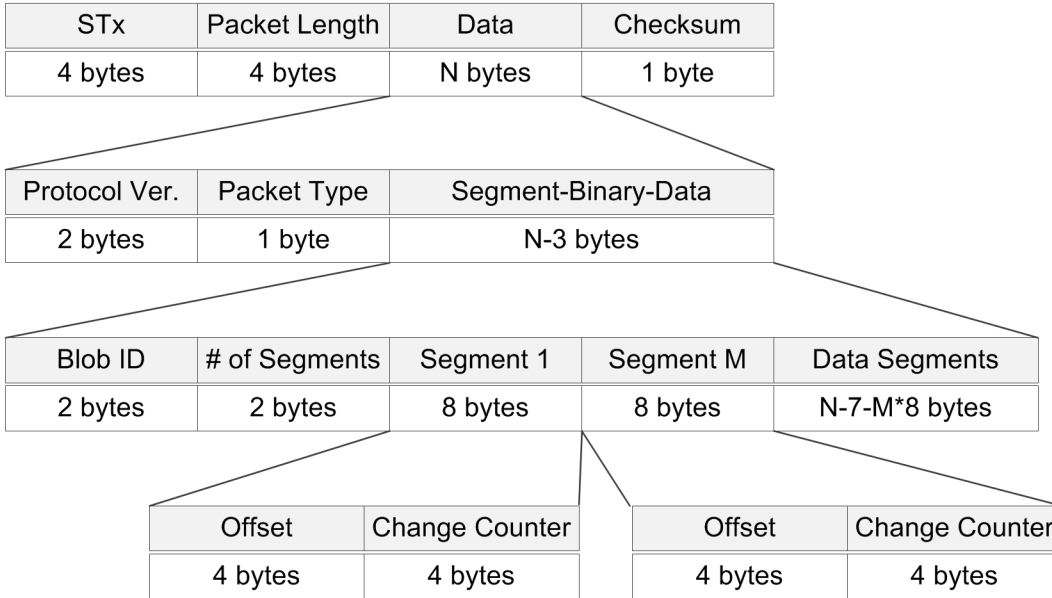


Figure 3. Blob structure overview

The following table describes the blob format items in detail:

Item Name	Description
STx	The framing header, always <0x02> <0x02> <0x02> <0x02>
Packet Length	The total number of bytes contained inside of Data
Data	Blob data without framing
Checksum	Not in use - Always <0x45>
Protocol Ver.	Always <0x00> <0x01>
Packet Type	Always <0x62>
Segment-Binary-Data	Blob data without Protocol Ver. and Packet Type
Blob ID	3D Data identification, always <0x00> <0x01>
# of Segments	The number of segments contained in this blob, M in this example
Segment 1..M	Each segment has its own 8 byte long description
Data Segments	Data Segments content (XML Metadata, Binary data and XML Overlays)
Offset	Defines where the segment data starts, counting begins <u>after</u> Packet Type
Change Counter	A counter value which will change if the segment content has changed

Figure 4. Items and description

3.3. Data Segments

We use the Blob ID = 1 and there are always the following three segments (in the given order):

- 1) XML metadata
- 2) Binary data
- 3) XML overlays

3.3.1. XML metadata

For how to extract the XML Metadata segment from the received data please refer to the Python example in *Data.py* and take a look inside the *Data.read()* method.

```
logging.debug("The whole XML segment:")  
logging.debug(xmlSegment)
```

3.3.2. Binary data

This segment contains the binary measurement data as captured or computed by the device. For how to extract the measurement values from the binary data segment of the received data please refer to the Python example in *Data.py* and take a look inside the *Data.read()* method. For parsing the binary data itself please refer to the class *BinaryParser* in the same file. There you will also find how to extract the other data like version, frame number, data quality, device status, and so on.

The binary data is structured in several data sets (as specified in the XML metadata part) like shown in the next figure:

Dataset 1				Dataset 2			
Length = J	Data	CRC of Data	Length = J	Length = K	Data	CRC of Data	Length = K
4 Bytes	J – 8 Bytes	4 Bytes	4 Bytes	4 Bytes	K – 8 Bytes	4 Bytes	4 Bytes
J Bytes				K Bytes			

Figure 5. Binary format: scans

For Visionary-T Mini CX there is only one *Dataset* possible. This *Dataset* is called *Depthmap Data*.



Data							
Timestamp	Version	Frame #	Data Quality	Device Status	Distance	Intensity	State
8 Bytes	2 Bytes	4 Bytes	1 Byte	1 Byte	512*424*2 bytes	512*424*2 bytes	512*424*2 bytes

Figure 6. Structure of the depthmap dataset

Pitfalls

The timestamp is 64bit in an internal SICK format. See the code in the Python examples (in file `Data.py` method `BinaryParser.logTimeStamp`) how to extract date and time. Note that the devices do not contain a real time clock and hence the timestamp can only be used for relative comparisons.

Contrary to all other parts, the binary data (*Depthmap*) is delivered in little-endian.

3.3.3. XML overlays

The XML overlays are visualized in Sopas ET in order to support the device configuration. Hence, the XML overlay segment always contains an empty overlay for the *ApiPort*.



4. Interfaces

4.1. General Access

4.1.1. SecureAuth

4.1.1.1. Method: GetAccessMode

The following section contains a detailed description of the method GetAccessMode.

Method Overview

Method Name	Description
GetAccessMode	This method is used to query the current operation mode. The operation mode corresponds to the user level of an active login (see chapter: User Level). If this value differs from user level RUN (value = 0) then the device is in configuration mode.

Invocation Access	Always
-------------------	--------

Return Values	
opmode	
USInt	
Value Range	0..255

Method Telegram Syntax

Method Invocation:				
sMN GetAccessMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	GetAccessMode	String	13	returns actual operation mode

Method Return Value:				
sAN GetAccessMode <opmode>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	GetAccessMode	String	13	returns actual operation mode
Return Value 1	opmode	USInt	1	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 47 65 74 41 63 63 65 73 73 4D 6F 64 65 20	[...]* MN GetAccessMode
Method Return Value:	[...]* 41 4E 20 47 65 74 41 63 63 65 73 73 4D 6F 64 65 20 00	[...]* AN GetAccessMode .



4.1.1.2. Method: SetUserLevel

Calculation of the challengeResponse parameter:

```
message = UserLevelName + ':SICK Sensor:' + PlaintextPassword + ':' + Salt
```

UserLevelName is the string of the name of the desired UserLevel e.g. 'AuthorizedClient',
*Salt is returned by the GetChallenge method in addition to the challenge bytes

```
hash = sha256(message)
```

hash is a 32x 8bit byte array

```
challengeResponse = sha256(hash + Challenge)
```

hash and Challenge are treated as bytes and hence binary data.

Challenge is 16x 8bit byte array returned by GetChallenge and challengeResponse is finally also a 32x 8bit byte array

Method Overview

Method Name	Description
SetUserLevel	This method is used to login to the device. NewMode corresponds to the desired User Level value. Logging in with a User Level different from RUN (value = 0) switches the device to configuration mode. For challengeResponse calculation see above.

Invocation Access	Always
-------------------	--------

Parameters	
challengeResponse	
Array	
Length	32
USInt	
Value Range	0..255
userLevel	
UserType	
E_USER_LEVEL_TYPE	See the chapter "User Types" for details.

Return Values			
result			
Enum8			
	Value	Name	Description
	0	SUCCESS	
	2	NOT_ACCEPTED	
	3	UNKNOWN_CHALLENGE	
	5	TIMELOCK_ACTIVE	

Method Telegram Syntax

Method Invocation:				
sMN SetUserLevel <challengeResponse> <userLevel>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	SetUserLevel	String	12	
Parameter 1	challengeResponse	Array	32	
Parameter 2	userLevel	E_USER_L EVEL_TYP E	0	

Method Return Value:				
sAN SetUserLevel <result>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	SetUserLevel	String	12	
Return Value 1	result	Enum8	1	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 53 65 74 55 73 65 72 4C 65 76 65 6C 20 00	[...]* MN SetUserLevel
Method Return Value:	[...]* 41 4E 20 53 65 74 55 73 65 72 4C 65 76 65 6C 20 00	[...]* AN SetUserLevel .

4.1.1.3. Method: Run



NOTE

The method needs to be used in order to be able to trigger snapshots (see Method: SingleStep).

Method Overview

Method Name	Description
Run	This method is used to logout from the device. It switches the device back to running mode if it's currently in configuration mode due to an active login.
Invocation Access	Always

Return Values	
success	
Bool	
Value Range	False, True
Initialisation	False

Method Telegram Syntax

Method Invocation:				
sMN Run				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	Run	String	3	Change operation mode to "Run"

Method Return Value:				
sAN Run <success>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	Run	String	3	Change operation mode to "Run"
Return Value 1	success	Bool	1	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 52 75 6E 20	[...]* MN Run
Method Return Value:	[...]* 41 4E 20 52 75 6E 20 00	[...]* AN Run .

4.1.1.4. Method: GetChallenge

The following section contains a detailed description of the method GetChallenge.

Method Overview

Method Name	Description
GetChallenge	This method is used to get the challenge and salt bytes for the secure authentication methods.

Invocation Access	Always
-------------------	--------

Parameters	
userLevel	
UserType	
E_USER_LEVEL_TYPE	See the chapter "User Types" for details.



Return Values			
result	Enum8		
	Value	Name	Description
	0	SUCCESS	
	2	NOT_ACCEPTED	
	5	TIMELOCK_ACTIVE	
S_OpMode_ChallengeRequest	Struct		
	usiChallenge		
	Array		
	Length	16	
		USInt	
	Value Range	0..255	
	usiSalt		
	Array		
Length	16		
	USInt		
Value Range	0..255		

Method Telegram Syntax

Method Invocation:				
sMN GetChallenge <userLevel>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	GetChallenge	String	12	
Parameter 1	userLevel	E_USER_L EVEL_TYP E	0	

Method Return Value:				
sAN GetChallenge <result> <S_OpMode_ChallengeRequest>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	GetChallenge	String	12	
Return Value 1	result	Enum8	1	
Return Value 2	S_OpMode_ChallengeRequest	Struct	32	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 47 65 74 43 68 61 6C 6C 65 6E 67 65 20 00	[...]* MN GetChallenge .
Method Return Value:	[...]* 41 4E 20 47 65 74 43 68 61 6C 6C 65 6E 67 65 20 00	[...]* AN GetChallenge



4.1.1.5. Method: ChangePassword

Calculation of the encryptedMessage parameter:

```
oldPwStr = UserLevelName + ':SICK Sensor:' + oldPassword + ':' +
oldSalt
newPwStr = UserLevelName + ':SICK Sensor:' + newPassword + ':' +
newSalt
```

UserLevelName is the string of the Name of the desired UserLevel e.g. 'AuthorizedClient', *oldSalt is returned by the GetChallenge method in addition to the challenge bytes, *newSalt is a 16byte random string generated by the client

```
oldPwHash = sha256(oldPsStr)
newPwHash = sha256(newPwStr)
oldPwHash, newPwHash are a 32x 8bit byte array
```

```
key = slice(oldPwHash, 0, 16)
iv = random(16)
encryptedNewPwHash = AES128CBC(key, iv, newPwHash)
```

key = first 16 bytes of oldPwHash, iv 16 random bytes

```
hmacData = iv + encryptedNewPwHash
generatedHMAC = HMACsha256(oldPwHash, hmacData)
encryptedMessage = iv + encryptedNewPwHash + generatedHMAC
```

Method Overview

Method Name	Description
ChangePassword	This method allows to change the secure hash for a UserLevel with known password.

Invocation Access	Always
-------------------	--------

Parameters	
encryptedMessage	
Array	
Length	0..96
USInt	
Value Range	0..255



Parameters	
userLevel	
UserType	
E_USER_LEVEL_TYPE	See the chapter "User Types" for details.

Return Values			
result			
Enum8			
	Value	Name	Description
	0	SUCCESS	
	2	NOT_ACCEPTED	
	4	PWD_NOT_CHANGABLE	
	5	TIMELOCK_ACTIVE	

Method Telegram Syntax

Method Invocation:				
sMN ChangePassword <encryptedMessage> <userLevel>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	ChangePassword	String	14	
Parameter 1	encryptedMessage	Array	96	
Parameter 2	userLevel	E_USER_LEVEL_TYPE	0	

Method Return Value:				
sAN ChangePassword <result>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	ChangePassword	String	14	
Return Value 1	result	Enum8	1	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 43 68 61 6E 67 65 50 61 73 73 77 6F 72 64 20 00 00 00	[...]* MN ChangePassword ...
Method Return Value:	[...]* 41 4E 20 43 68 61 6E 67 65 50 61 73 73 77 6F 72 64 20 00	[...]* AN ChangePassword .

4.1.2. Ethernet Settings

4.1.2.1. Variable: EtherAddressingMode



NOTE

When no DHCP server is running (and device is in TX_RETRY mode, see EtherDHCPFallback) it is no longer accessible. Use AutoIP discovery to recover the device using its MAC Address.

Variable Overview

Variable Name	Description
EtherAddressingMode	Mode for ethernet address assignment

Communication Name	EIAddrMode
Read-Access	Always
Write-Access	Service

Enum8			
Default Value	TX_IP_STATIC		
Value	Name	Description	
0	TX_IP_STATIC		
1	TX_IP_DHCP		

Variable Telegram Syntax

Read Variable:				
sRN EIAddrMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EIAddrMode	String	10	Which mode to use for Ethernet address assignment

Read Variable Response:				
sRA EIAddrMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EIAddrMode	String	10	Which mode to use for Ethernet address assignment
Variable Data	data	Enum8	1	

Write Variable:				
sWN EIAddrMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	EIAddrMode	String	10	Which mode to use for Ethernet address assignment
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA EIAddrMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	EIAddrMode	String	10	Which mode to use for Ethernet address assignment

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 41 64 64 72 4D 6F 64 65 20	[...]* RN EIAddrMode
Read Variable Response:	[...]* 52 41 20 45 49 41 64 64 72 4D 6F 64 65 20 00	[...]* RA EIAddrMode .
Write Variable:	[...]* 57 4E 20 45 49 41 64 64 72 4D 6F 64 65 20 00	[...]* WN EIAddrMode .
Write Variable Response:	[...]* 57 41 20 45 49 41 64 64 72 4D 6F 64 65 20	[...]* WA EIAddrMode

4.1.2.2. Method: EthernetUpdate

The following section contains a detailed description of the method EthernetUpdate.

Method Overview

Method Name	Description
EthernetUpdate	This method applies the changed ethernet parameters.
Communication Name	mEthUpdt
Invocation Access	AuthorizedClient, Service

Method Telegram Syntax

Method Invocation:				
sMN mEthUpdt				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	mEthUpdt	String	8	updates the ethernet connection

Method Return Value:				
sAN mEthUpdt				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	mEthUpdt	String	8	updates the ethernet connection

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 6D 45 74 68 55 70 64 74 20	[...]* MN mEthUpdt
Method Return Value:	[...]* 41 4E 20 6D 45 74 68 55 70 64 74 20	[...]* AN mEthUpdt

4.1.2.3. Variable: EtherLinkState

The following section contains a detailed description of the variable EtherLinkState.

Variable Overview

Variable Name	Description
EtherLinkState	Link state of the ethernet connection, up or down

Communication Name	EILinkState
Read-Access	Always
Write-Access	No! (readonly)

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN EILinkState				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EILinkState	String	11	Linkstate of the Cable, up or down

Read Variable Response:				
sRA EILinkState <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EILinkState	String	11	Linkstate of the Cable, up or down
Variable Data	data	Bool	1	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 4C 69 6E 6B 53 74 61 74 65 20	[...]* RN EILinkState
Read Variable Response:	[...]* 52 41 20 45 49 4C 69 6E 6B 53 74 61 74 65 20 00	[...]* RA EILinkState .

4.1.2.4. Variable: EtherMACAddress

The following section contains a detailed description of the variable EtherMACAddress.

Variable Overview

Variable Name	Description
EtherMACAddress	MAC address of the device

Communication Name	EIMacAdr
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	6
Default Value	{0,6,0x77,0,0,0}
USInt	
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN EIMacAdr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EIMacAdr	String	8	MAC-Address of the Device

Read Variable Response:				
sRA EIMacAdr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EIMacAdr	String	8	MAC-Address of the Device
Variable Data	data	Array	6	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 4D 61 63 41 64 72 20	[...]* RN EIMacAdr
Read Variable Response:	[...]* 52 41 20 45 49 4D 61 63 41 64 72 20 00 06 77 00 00 00	[...]* RA EIMacAdr ··w· ··

4.1.2.5. Variable: EtherIPAddress

The following section contains a detailed description of the variable EtherIPAddress.

Variable Overview

Variable Name	Description
EtherIPAddress	IP address of the device. Changes take effect after method EthernetUpdate gets called.

Communication Name	EIPAddr
Read-Access	Always
Write-Access	AuthorizedClient, Service

Array	
Length	4
Default Value	{192,168,1,10}
USInt	
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN EIIPAddr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EIPAddr	String	8	IP-Address of the Device

Read Variable Response:				
sRA EIIPAddr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EIPAddr	String	8	IP-Address of the Device
Variable Data	data	Array	4	



Write Variable:				
sWN EIPAddr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	EIPAddr	String	8	IP-Address of the Device
Variable Data	data	Array	4	

Write Variable Response:				
sWA EIPAddr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	EIPAddr	String	8	IP-Address of the Device

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 49 70 41 64 64 72 20	[...]* RN EIPAddr
Read Variable Response:	[...]* 52 41 20 45 49 49 70 41 64 64 72 20 C0 A8 01 0A	[...]* RA EIPAddr ..
Write Variable:	[...]* 57 4E 20 45 49 49 70 41 64 64 72 20 C0 A8 01 0A	[...]* WN EIPAddr ..
Write Variable Response:	[...]* 57 41 20 45 49 49 70 41 64 64 72 20	[...]* WA EIPAddr

4.1.2.6. Variable: EtherIPMask

The following section contains a detailed description of the variable EtherIPMask.

Variable Overview

Variable Name	Description
EtherIPMask	Network mask of the device. Changes take effect after method EthernetUpdate gets called.

Communication Name	Elmask
Read-Access	Always
Write-Access	AuthorizedClient, Service

Array	
Length	4
Default Value	{255,255,255,0}
	USInt
Value Range	0..255



Variable Telegram Syntax

Read Variable:				
sRN EImask				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EImask	String	6	Netmask

Read Variable Response:				
sRA EImask <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EImask	String	6	Netmask
Variable Data	data	Array	4	

Write Variable:				
sWN EImask <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	EImask	String	6	Netmask
Variable Data	data	Array	4	

Write Variable Response:				
sWA EImask				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	EImask	String	6	Netmask

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 6D 61 73 6B 20	[...]* RN EImask
Read Variable Response:	[...]* 52 41 20 45 49 6D 61 73 6B 20 FF FF FF 00	[...]* RA EImask .
Write Variable:	[...]* 57 4E 20 45 49 6D 61 73 6B 20 FF FF FF 00	[...]* WN EImask .
Write Variable Response:	[...]* 57 41 20 45 49 6D 61 73 6B 20	[...]* WA EImask

4.1.2.7. Variable: EtherIPGateAddress

The following section contains a detailed description of the variable EtherIPGateAddress.

Variable Overview

Variable Name	Description
EtherIPGateAddress	Gateway IP address of the device. Changes take effect after method EthernetUpdate gets called.

Communication Name	Elgate
Read-Access	Always
Write-Access	AuthorizedClient, Service

Array	
Length	4
Default Value	{0,0,0,0}
USInt	
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN Elgate				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	Elgate	String	6	IP-Address of the Ethernet Gateway

Read Variable Response:				
sRA Elgate <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	Elgate	String	6	IP-Address of the Ethernet Gateway
Variable Data	data	Array	4	

Write Variable:				
sWN Elgate <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	Elgate	String	6	IP-Address of the Ethernet Gateway
Variable Data	data	Array	4	

Write Variable Response:				
sWA Elgate				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	Elgate	String	6	IP-Address of the Ethernet Gateway

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 67 61 74 65 20	[...]* RN Eigate
Read Variable Response:	[...]* 52 41 20 45 49 67 61 74 65 20 00 00 00 00	[...]* RA Eigate
Write Variable:	[...]* 57 4E 20 45 49 67 61 74 65 20 00 00 00 00	[...]* WN Eigate
Write Variable Response:	[...]* 57 41 20 45 49 67 61 74 65 20	[...]* WA Eigate

4.1.2.8. Variable: EtherIPAddressDHCP

The following section contains a detailed description of the variable EtherIPAddressDHCP.

Variable Overview

Variable Name	Description
EtherIPAddressDHCP	IP address of the device assigned by DHCP (if active)

Communication Name	EIIPAddrDHCP
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	4
Default Value	{192,168,0,1}
USInt	
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN EIIPAddrDHCP				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EIIPAddrDHCP	String	12	IP-Address of the Device assigned by DHCP if active

Read Variable Response:				
sRA EIIPAddrDHCP <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EIIPAddrDHCP	String	12	IP-Address of the Device assigned by DHCP if active
Variable Data	data	Array	4	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 49 70 41 64 64 72 44 48 43 50 20	[...]* RN EIIpAddrDHCP
Read Variable Response:	[...]* 52 41 20 45 49 49 70 41 64 64 72 44 48 43 50 20 C0 A8 00 01	[...]* RA EIIpAddrDHCP ..

4.1.2.9. Variable: EtherIPMaskDHCP

The following section contains a detailed description of the variable EtherIPMaskDHCP.

Variable Overview

Variable Name	Description
EtherIPMaskDHCP	Netmask assigned by DHCP (if active)

Communication Name	EImaskDHCP
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	4
Default Value	{255,255,255,0}
USInt	
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN EImaskDHCP				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EImaskDHCP	String	10	Netmask assigned by DHCP if active

Read Variable Response:				
sRA EImaskDHCP <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EImaskDHCP	String	10	Netmask assigned by DHCP if active
Variable Data	data	Array	4	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 6D 61 73 6B 44 48 43 50 20	[...]* RN EImaskDHCP
Read Variable Response:	[...]* 52 41 20 45 49 6D 61 73 6B 44 48 43 50 20 FF FF FF 00	[...]* RA EImaskDHCP .

4.1.2.10. Variable: EtherIPGateAddressDHCP

The following section contains a detailed description of the variable EtherIPGateAddressDHCP.

Variable Overview

Variable Name	Description
EtherIPGateAddressDHCP	IP address of the ethernet gateway assigned by DHCP (if active)

Communication Name	ElgateDHCP
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	4
Default Value	{0,0,0,0}
	USInt
Value Range	0..255

Variable Telegram Syntax

Read Variable:				
sRN ElgateDHCP				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ElgateDHCP	String	10	IP-Address of the Ethernet Gateway assigned by DHCP if active

Read Variable Response:				
sRA ElgateDHCP <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ElgateDHCP	String	10	IP-Address of the Ethernet Gateway assigned by DHCP if active
Variable Data	data	Array	4	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 67 61 74 65 44 48 43 50 20	[...]* RN EigateDHCP
Read Variable Response:	[...]* 52 41 20 45 49 67 61 74 65 44 48 43 50 20 00 00 00 00	[...]* RA EigateDHCP

4.1.2.11. Variable: EtherDHCPFallback

The following section contains a detailed description of the variable EtherDHCPFallback.

Variable Overview

Variable Name	Description
EtherDHCPFallback	Action if DHCP was unsuccessful: retry or fallback. EtherIPAddress, EtherIPMask, EtherIPGateAddress will be used as fallback as configured for static case.

Communication Name	EIDHCPFallback
Read-Access	Always
Write-Access	Service

Enum8			
Default Value		TX_RETRY_DHCP	
	Value	Name	Description
	0	TX_USE_STATIC_IP	
	1	TX_RETRY_DHCP	

Variable Telegram Syntax

Read Variable:				
sRN EIDHCPFallback				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EIDHCPFallback	String	14	Fallback if DHCP not successful

Read Variable Response:				
sRA EIDHCPFallback <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EIDHCPFallback	String	14	Fallback if DHCP not successful
Variable Data	data	Enum8	1	



Write Variable:				
sWN EIDHCPFallback <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	EIDHCPFallback	String	14	Fallback if DHCP not successful
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA EIDHCPFallback				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	EIDHCPFallback	String	14	Fallback if DHCP not successful

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 44 48 43 50 46 61 6C 6C 62 61 63 6B 20	[...]* RN EIDHCPFallbac k
Read Variable Response:	[...]* 52 41 20 45 49 44 48 43 50 46 61 6C 6C 62 61 63 6B 20 01	[...]* RA EIDHCPFallbac k .
Write Variable:	[...]* 57 4E 20 45 49 44 48 43 50 46 61 6C 6C 62 61 63 6B 20 01	[...]* WN EIDHCPFallbac k .
Write Variable Response:	[...]* 57 41 20 45 49 44 48 43 50 46 61 6C 6C 62 61 63 6B 20	[...]* WA EIDHCPFallbac k

4.1.2.12. Variable: EtherIPSpeedDuplex

The following section contains a detailed description of the variable EtherIPSpeedDuplex.

Variable Overview

Variable Name	Description
EtherIPSpeedDuplex	Ethernet speed and duplex settings
Communication Name	EISpdDpx
Read-Access	Always
Write-Access	Service



Enum8			
Default Value		TX_AUTO	
Value	Name	Description	
0	TX_AUTO		
1	TX_10MB_HALF		
2	TX_10MB_FULL		
3	TX_100MB_HALF		
4	TX_100MB_FULL		
5	TX_1000MB_HALF		
6	TX_1000MB_FULL		

Variable Telegram Syntax

Read Variable:				
sRN EISpdDpx				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EISpdDpx	String	8	Speed and Duplex settings

Read Variable Response:				
sRA EISpdDpx <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EISpdDpx	String	8	Speed and Duplex settings
Variable Data	data	Enum8	1	

Write Variable:				
sWN EISpdDpx <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	EISpdDpx	String	8	Speed and Duplex settings
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA EISpdDpx				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	EISpdDpx	String	8	Speed and Duplex settings

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 53 70 64 44 70 78 20	[...]* RN EISpdDpx
Read Variable Response:	[...]* 52 41 20 45 49 53 70 64 44 70 78 20 00	[...]* RA EISpdDpx .
Write Variable:	[...]* 57 4E 20 45 49 53 70 64 44 70 78 20 00	[...]* WN EISpdDpx .

Write Variable Response:	[...]* 57 41 20 45 49 53 70 64 44 70 78 20	[...]* WA EISpdDpx
---------------------------------	---	-----------------------

4.1.2.13. Variable: EtherIPSpeedDuplexNegotiated

The following section contains a detailed description of the variable EtherIPSpeedDuplexNegotiated.

Variable Overview

Variable Name	Description
EtherIPSpeedDuplexNegotiated	Speed and duplex settings as negotiated when EtherIPSpeedDuplex is set to AUTO

Communication Name	EISpdDpxNet
Read-Access	Always
Write-Access	No! (readonly)

Enum8			
Default Value		TX_UNKNOWN_DUPLEX_SPEED	
Value	Name	Description	
0	TX_UNKNOWN_DUPLEX_SPEED		
1	TX_10MB_HALF		
2	TX_10MB_FULL		
3	TX_100MB_HALF		
4	TX_100MB_FULL		
5	TX_1000MB_HALF		
6	TX_1000MB_FULL		

Variable Telegram Syntax

Read Variable:				
sRN EISpdDpxNet				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	EISpdDpxNet	String	11	Speed and Duplex settings as negotiated when set to AUTO

Read Variable Response:				
sRA EISpdDpxNet <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	EISpdDpxNet	String	11	Speed and Duplex settings as negotiated when set to AUTO
Variable Data	data	Enum8	1	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 49 53 70 64 44 70 78 4E 65 74 20	[...]* RN EISpdDpxNet
Read Variable Response:	[...]* 52 41 20 45 49 53 70 64 44 70 78 4E 65 74 20 00	[...]* RA EISpdDpxNet .



4.1.3. Ethernet Protocol Settings

4.1.3.1. Variable: BlobTransportProtocolAPI

The following section contains a detailed description of the variable BlobTransportProtocolAPI.

Variable Overview

Variable Name	Description
BlobTransportProtocolAPI	Protocol which should be used for blob transport.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Enum8			
Default Value		TCP	
	Value	Name	Description
	0	TCP	TCP Protocol
	1	UDP	UDP Protocol

Variable Telegram Syntax

Read Variable:				
sRN BlobTransportProtocolAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobTransportProtocolAPI	String	24	

Read Variable Response:				
sRA BlobTransportProtocolAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobTransportProtocolAPI	String	24	
Variable Data	data	Enum8	1	

Write Variable:				
sWN BlobTransportProtocolAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobTransportProtocolAPI	String	24	
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA BlobTransportProtocolAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobTransportProtocolAPI	String	24	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 54 72 61 6E 73 70 6F 72 74 50 72 6F 74 6F 63 6F 6C 41 50 49 20	[...]* RN BlobTransport ProtocolAPI
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 54 72 61 6E 73 70 6F 72 74 50 72 6F 74 6F 63 6F 6C 41 50 49 20 00	[...]* RA BlobTransport ProtocolAPI ·
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 54 72 61 6E 73 70 6F 72 74 50 72 6F 74 6F 63 6F 6C 41 50 49 20 00	[...]* WN BlobTransport ProtocolAPI ·
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 54 72 61 6E 73 70 6F 72 74 50 72 6F 74 6F 63 6F 6C 41 50 49 20	[...]* WA BlobTransport ProtocolAPI

4.1.3.2. Variable: BlobTcpPortAPI

The following section contains a detailed description of the variable BlobTcpPortAPI.

Variable Overview

Variable Name	Description
BlobTcpPortAPI	Port number which should be used for blob transmission.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	1025..65535
Initialisation	2114

Variable Telegram Syntax

Read Variable:				
sRN BlobTcpPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobTcpPortAPI	String	14	

Read Variable Response:				
sRA BlobTcpPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobTcpPortAPI	String	14	
Variable Data	data	UInt	2	



Write Variable:				
sWN BlobTcpPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobTcpPortAPI	String	14	
Variable Data	data	UInt	2	

Write Variable Response:				
sWA BlobTcpPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobTcpPortAPI	String	14	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 54 63 70 50 6F 72 74 41 50 49 20	[...]* RN BlobTcpPortAP I
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 54 63 70 50 6F 72 74 41 50 49 20 08 42	[...]* RA BlobTcpPortAP I ·B
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 54 63 70 50 6F 72 74 41 50 49 20 08 42	[...]* WN BlobTcpPortAP I ·B
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 54 63 70 50 6F 72 74 41 50 49 20	[...]* WA BlobTcpPortAP I

4.1.3.3. Variable: BlobUdpAutoTransmit

The following section contains a detailed description of the variable BlobUdpAutoTransmit.

Variable Overview

Variable Name	Description
BlobUdpAutoTransmit	Enables automatic UDP transmission to specified client.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False



Variable Telegram Syntax

Read Variable:				
sRN BlobUdpAutoTransmit				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpAutoTransmit	String	19	Enables Auto transmit to specified Client

Read Variable Response:				
sRA BlobUdpAutoTransmit <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpAutoTransmit	String	19	Enables Auto transmit to specified Client
Variable Data	data	Bool	1	

Write Variable:				
sWN BlobUdpAutoTransmit <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpAutoTransmit	String	19	Enables Auto transmit to specified Client
Variable Data	data	Bool	1	

Write Variable Response:				
sWA BlobUdpAutoTransmit				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpAutoTransmit	String	19	Enables Auto transmit to specified Client

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 41 75 74 6F 54 72 61 6E 73 6D 69 74 20	[...]* RN BlobUdpAutoTr ansmit
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 41 75 74 6F 54 72 61 6E 73 6D 69 74 20 00	[...]* RA BlobUdpAutoTr ansmit .
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 41 75 74 6F 54 72 61 6E 73 6D 69 74 20 00	[...]* WN BlobUdpAutoTr ansmit .
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 41 75 74 6F 54 72 61 6E 73 6D 69 74 20	[...]* WA BlobUdpAutoTr ansmit

4.1.3.4. Variable: BlobUdpReceiverIPAPI

The following section contains a detailed description of the variable BlobUdpReceiverIPAPI.

Variable Overview

Variable Name	Description
BlobUdpReceiverIPAPI	The receiver IP address to which the blob data will be sent.

Read-Access	Always
Write-Access	AuthorizedClient, Service

FlexString	
Length	0..45
Initialisation	192.168.1.2

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpReceiverIPAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpReceiverIPAPI	String	20	The IP Address where the blob data will be send to.

Read Variable Response:				
sRA BlobUdpReceiverIPAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpReceiverIPAPI	String	20	The IP Address where the blob data will be send to.
Variable Data	data	FlexString	45	

Write Variable:				
sWN BlobUdpReceiverIPAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpReceiverIPAPI	String	20	The IP Address where the blob data will be send to.
Variable Data	data	FlexString	45	

Write Variable Response:				
sWA BlobUdpReceiverIPAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpReceiverIPAPI	String	20	The IP Address where the blob data will be send to.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 49 50 41 50 49 20	[...]* RN BlobUdpReceiv erIPAPI
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 49 50 41 50 49 20 00 0B 31 39 32 2E 31 36 38 2E 31 2E 32	[...]* RA BlobUdpReceiv erIPAPI ..192.16 8.1.2
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 49 50 41 50 49 20 00 0B 31 39 32 2E 31 36 38 2E 31 2E 32	[...]* WN BlobUdpReceiv erIPAPI ..192.16 8.1.2
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 49 50 41 50 49 20	[...]* WA BlobUdpReceiv erIPAPI

4.1.3.5. Variable: BlobUdpReceiverPortAPI

The following section contains a detailed description of the variable BlobUdpReceiverPortAPI.

Variable Overview

Variable Name	Description
BlobUdpReceiverPortAPI	The receiver port for the UDP blob transmission.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	1025..65535
Initialisation	2114

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpReceiverPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpReceiverPortAPI	String	22	

Read Variable Response:				
sRA BlobUdpReceiverPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpReceiverPortAPI	String	22	
Variable Data	data	UInt	2	



Write Variable:				
sWN BlobUdpReceiverPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpReceiverPortAPI	String	22	
Variable Data	data	UInt	2	

Write Variable Response:				
sWA BlobUdpReceiverPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpReceiverPortAPI	String	22	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 50 6F 72 74 41 50 49 20	[...]* RN BlobUdpReceiverPortAPI
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 50 6F 72 74 41 50 49 20 08 42	[...]* RA BlobUdpReceiverPortAPI ·B
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 50 6F 72 74 41 50 49 20 08 42	[...]* WN BlobUdpReceiverPortAPI ·B
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 52 65 63 65 69 76 65 72 50 6F 72 74 41 50 49 20	[...]* WA BlobUdpReceiverPortAPI

4.1.3.6. Variable: BlobUdpControlPortAPI

The following section contains a detailed description of the variable BlobUdpControlPortAPI.

Variable Overview

Variable Name	Description
BlobUdpControlPortAPI	The control port for the UDP blob transmission.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	1025..65535
Initialisation	2114



Variable Telegram Syntax

Read Variable:				
sRN BlobUdpControlPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpControlPortAPI	String	21	

Read Variable Response:				
sRA BlobUdpControlPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpControlPortAPI	String	21	
Variable Data	data	UInt	2	

Write Variable:				
sWN BlobUdpControlPortAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpControlPortAPI	String	21	
Variable Data	data	UInt	2	

Write Variable Response:				
sWA BlobUdpControlPortAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpControlPortAPI	String	21	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 43 6F 6E 74 72 6F 6C 50 6F 72 74 41 50 49 20	[...]* RN BlobUdpControlPortAPI
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 43 6F 6E 74 72 6F 6C 50 6F 72 74 41 50 49 20 08 42	[...]* RA BlobUdpControlPortAPI ·B
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 43 6F 6E 74 72 6F 6C 50 6F 72 74 41 50 49 20 08 42	[...]* WN BlobUdpControlPortAPI ·B
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 43 6F 6E 74 72 6F 6C 50 6F 72 74 41 50 49 20	[...]* WA BlobUdpControlPortAPI

4.1.3.7. Variable: BlobUdpHeaderEnabled

The following section contains a detailed description of the variable BlobUdpHeaderEnabled.

Variable Overview

Variable Name	Description
BlobUdpHeaderEnabled	Enable header in UDP packets.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	True

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpHeaderEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets

Read Variable Response:				
sRA BlobUdpHeaderEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets
Variable Data	data	Bool	1	

Write Variable:				
sWN BlobUdpHeaderEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets
Variable Data	data	Bool	1	

Write Variable Response:				
sWA BlobUdpHeaderEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20	[...]* RN BlobUdpHeader Enabled
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20 01	[...]* RA BlobUdpHeader Enabled .
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20 01	[...]* WN BlobUdpHeader Enabled .
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20	[...]* WA BlobUdpHeader Enabled

4.1.3.8. Variable: BlobUdpHeartbeatInterval

The following section contains a detailed description of the variable BlobUdpHeartbeatInterval.

Variable Overview

Variable Name	Description
BlobUdpHeartbeatInterval	The maximal interval between two heartbeats in ms (0 = disabled).

Read-Access	Always
Write-Access	AuthorizedClient, Service

UDInt	
Value Range	0..10000000
Initialisation	0
Physical Unit	ms

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpHeartbeatInterval				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpHeartbeatInterval	String	24	The maximum Interval between two heartbeats in ms (0 = disabled)

Read Variable Response:				
sRA BlobUdpHeartbeatInterval <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpHeartbeatInterval	String	24	The maximum Interval between two heartbeats in ms (0 = disabled)
Variable Data	data	UDInt	4	



Write Variable:				
sWN BlobUdpHeartbeatInterval <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpHeartbeatInterval	String	24	The maximum Interval between two heartbeats in ms (0 = disabled)
Variable Data	data	UDInt	4	

Write Variable Response:				
sWA BlobUdpHeartbeatInterval				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpHeartbeatInterval	String	24	The maximum Interval between two heartbeats in ms (0 = disabled)

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 48 65 61 72 74 62 65 61 74 49 6E 74 65 72 76 61 6C 20	[...]* RN BlobUdpHeartbeatInterval
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 48 65 61 72 74 62 65 61 74 49 6E 74 65 72 76 61 6C 20 00 00 00 00	[...]* RA BlobUdpHeartbeatInterval
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 48 65 61 72 74 62 65 61 74 49 6E 74 65 72 76 61 6C 20 00 00 00 00	[...]* WN BlobUdpHeartbeatInterval
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 48 65 61 72 74 62 65 61 74 49 6E 74 65 72 76 61 6C 20	[...]* WA BlobUdpHeartbeatInterval

4.1.3.9. Variable: BlobUdpMaxPacketSizeAPI

The following section contains a detailed description of the variable BlobUdpMaxPacketSizeAPI.

Variable Overview

Variable Name	Description
BlobUdpMaxPacketSizeAPI	The maximum size of a single UDP packet.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	100..65535
Initialisation	1024



Variable Telegram Syntax

Read Variable:				
sRN BlobUdpMaxPacketSizeAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpMaxPacketSizeAPI	String	23	The maximum size of a single UDP Packet

Read Variable Response:				
sRA BlobUdpMaxPacketSizeAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpMaxPacketSizeAPI	String	23	The maximum size of a single UDP Packet
Variable Data	data	UInt	2	

Write Variable:				
sWN BlobUdpMaxPacketSizeAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpMaxPacketSizeAPI	String	23	The maximum size of a single UDP Packet
Variable Data	data	UInt	2	

Write Variable Response:				
sWA BlobUdpMaxPacketSizeAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpMaxPacketSizeAPI	String	23	The maximum size of a single UDP Packet

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 4D 61 78 50 61 63 6B 65 74 53 69 7A 65 41 50 49 20	[...]* RN BlobUdpMaxPac ketSizeAPI
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 4D 61 78 50 61 63 6B 65 74 53 69 7A 65 41 50 49 20 04 00	[...]* RA BlobUdpMaxPac ketSizeAPI ..
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 4D 61 78 50 61 63 6B 65 74 53 69 7A 65 41 50 49 20 04 00	[...]* WN BlobUdpMaxPac ketSizeAPI ..
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 4D 61 78 50 61 63 6B 65 74 53 69 7A 65 41 50 49 20	[...]* WA BlobUdpMaxPac ketSizeAPI

4.1.3.10. Variable: BlobUdpIdleTimeBetweenPacketsAPI

The following section contains a detailed description of the variable BlobUdpIdleTimeBetweenPacketsAPI.

Variable Overview

Variable Name	Description
BlobUdpIdleTimeBetweenPacketsAPI	Waiting time in microseconds before a new packet is sent.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	10..10000
Initialisation	10
Physical Unit	µs

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpIdleTimeBetweenPacketsAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpIdleTimeBetweenPacketsAPI	String	32	The time in µs the device waits before sending a new Packet

Read Variable Response:				
sRA BlobUdpIdleTimeBetweenPacketsAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpIdleTimeBetweenPacketsAPI	String	32	The time in µs the device waits before sending a new Packet
Variable Data	data	UInt	2	

Write Variable:				
sWN BlobUdpIdleTimeBetweenPacketsAPI <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpIdleTimeBetweenPacketsAPI	String	32	The time in µs the device waits before sending a new Packet
Variable Data	data	UInt	2	

Write Variable Response:				
sWA BlobUdpIdleTimeBetweenPacketsAPI				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpIdleTimeBetweenPacketsAPI	String	32	The time in µs the device waits before sending a new Packet



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 49 64 6C 65 54 69 6D 65 42 65 74 77 65 65 6E 50 61 63 6B 65 74 73 41 50 49 20	[...]* RN BlobUdpIdleTi meBetweenPackets API
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 49 64 6C 65 54 69 6D 65 42 65 74 77 65 65 6E 50 61 63 6B 65 74 73 41 50 49 20 00 0A	[...]* RA BlobUdpIdleTi meBetweenPackets API ..
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 49 64 6C 65 54 69 6D 65 42 65 74 77 65 65 6E 50 61 63 6B 65 74 73 41 50 49 20 00 0A	[...]* WN BlobUdpIdleTi meBetweenPackets API ..
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 49 64 6C 65 54 69 6D 65 42 65 74 77 65 65 6E 50 61 63 6B 65 74 73 41 50 49 20	[...]* WA BlobUdpIdleTi meBetweenPackets API

4.1.3.11. Variable: BlobUdpHeaderEnabled

The following section contains a detailed description of the variable BlobUdpHeaderEnabled.

Variable Overview

Variable Name	Description
BlobUdpHeaderEnabled	Enable header in UDP packets.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	True



Variable Telegram Syntax

Read Variable:				
sRN BlobUdpHeaderEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets

Read Variable Response:				
sRA BlobUdpHeaderEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets
Variable Data	data	Bool	1	

Write Variable:				
sWN BlobUdpHeaderEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets
Variable Data	data	Bool	1	

Write Variable Response:				
sWA BlobUdpHeaderEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpHeaderEnabled	String	20	Enable Header in UDP Packets

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20	[...]* RN BlobUdpHeader Enabled
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20 01	[...]* RA BlobUdpHeader Enabled .
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20 01	[...]* WN BlobUdpHeader Enabled .
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 48 65 61 64 65 72 45 6E 61 62 6C 65 64 20	[...]* WA BlobUdpHeader Enabled

4.1.3.12. Variable: BlobUdpFECEnabled

The following section contains a detailed description of the variable BlobUdpFECEnabled.

Variable Overview

Variable Name	Description
BlobUdpFECEnabled	Enable Forward Error Correction for UDP packets.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN BlobUdpFECEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	BlobUdpFECEnabled	String	17	Enable Forward Error Correction for UDP Packets

Read Variable Response:				
sRA BlobUdpFECEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	BlobUdpFECEnabled	String	17	Enable Forward Error Correction for UDP Packets
Variable Data	data	Bool	1	

Write Variable:				
sWN BlobUdpFECEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	BlobUdpFECEnabled	String	17	Enable Forward Error Correction for UDP Packets
Variable Data	data	Bool	1	

Write Variable Response:				
sWA BlobUdpFECEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	BlobUdpFECEnabled	String	17	Enable Forward Error Correction for UDP Packets

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 42 6C 6F 62 55 64 70 46 45 43 45 6E 61 62 6C 65 64 20	[...]* RN BlobUdpFECEnabled
Read Variable Response:	[...]* 52 41 20 42 6C 6F 62 55 64 70 46 45 43 45 6E 61 62 6C 65 64 20 00	[...]* RA BlobUdpFECEnabled .
Write Variable:	[...]* 57 4E 20 42 6C 6F 62 55 64 70 46 45 43 45 6E 61 62 6C 65 64 20 00	[...]* WN BlobUdpFECEnabled .
Write Variable Response:	[...]* 57 41 20 42 6C 6F 62 55 64 70 46 45 43 45 6E 61 62 6C 65 64 20	[...]* WA BlobUdpFECEnabled

4.1.4. Variable: SCPParamsChanged

The following section contains a detailed description of the variable SCPParamsChanged.

Variable Overview

Variable Name	Description
SCPParamsChanged	Flag is set if parameters may have been changed but are not saved permanently

Communication Name	SCParmChngd
Read-Access	Always
Write-Access	No! (readonly)

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN SCParmChngd				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	SCParmChngd	String	11	Flag is set if parameters may have been changed but are not saved permanently

Read Variable Response:				
sRA SCParmChngd <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	SCParmChngd	String	11	Flag is set if parameters may have been changed but are not saved permanently
Variable Data	data	Bool	1	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 53 43 50 61 72 6D 43 68 6E 67 64 20	[...]* RN SCParmChngd
Read Variable Response:	[...]* 52 41 20 53 43 50 61 72 6D 43 68 6E 67 64 20 00	[...]* RA SCParmChngd .

4.1.5. Method: WriteEeprom

The following section contains a detailed description of the method WriteEeprom.

Method Overview

Method Name	Description
WriteEeprom	Method writes all permanent parameters from the SOPAS mirror to the device memory.

Communication Name	mEEwriteall
Invocation Access	AuthorizedClient, Service

Return Values	
Success	
Bool	
Value Range	False, True
Initialisation	False

Method Telegram Syntax

Method Invocation:				
sMN mEEwriteall				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	mEEwriteall	String	11	Method writes all permanent parameters from the SOPAS mirror to the ParamEeprom

Method Return Value:				
sAN mEEwriteall <Success>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	mEEwriteall	String	11	Method writes all permanent parameters from the SOPAS mirror to the ParamEeprom
Return Value 1	Success	Bool	1	

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 6D 45 45 77 72 69 74 65 61 6C 6C 20	[...]* MN mEEwriteall
Method Return Value:	[...]* 41 4E 20 6D 45 45 77 72 69 74 65 61 6C 6C 20 00	[...]* AN mEEwriteall .

4.1.6. Method: RebootDevice

The following section contains a detailed description of the method RebootDevice.

Method Overview

Method Name	Description
RebootDevice	Method reboots the device an saves the parameters before shutdown ist executed.

Communication Name	mSCreboot
Invocation Access	AuthorizedClient, Service

Method Telegram Syntax

Method Invocation:				
sMN mSCreboot				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	mSCreboot	String	9	Method shuts the device down but saves the parameter before shutdown ist executed

Method Return Value:				
sAN mSCreboot				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	mSCreboot	String	9	Method shuts the device down but saves the parameter before shutdown ist executed

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 6D 53 43 72 65 62 6F 6F 74 20	[...]* MN mSCreboot
Method Return Value:	[...]* 41 4E 20 6D 53 43 72 65 62 6F 6F 74 20	[...]* AN mSCreboot

4.1.7. Method: LoadApplicationDefaults

The following section contains a detailed description of the method LoadApplicationDefaults.

Method Overview

Method Name	Description
LoadApplicationDefaults	Resets all application variables to their default value.

Communication Name	mSCloadappdef
Invocation Access	AuthorizedClient, Service

Method Telegram Syntax

Method Invocation:				
sMN mSCloadappdef				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	mSCloadappdef	String	13	The method resets all application relevant variables to their default value

Method Return Value:				
sAN mSCloadappdef				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	mSCloadappdef	String	13	The method resets all application relevant variables to their default value

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 6D 53 43 6C 6F 61 64 61 70 70 64 65 66 20	[...]* MN mSCloadappdef
Method Return Value:	[...]* 41 4E 20 6D 53 43 6C 6F 61 64 61 70 70 64 65 66 20	[...]* AN mSCloadappdef

4.1.8. Method: LoadFactoryDefaults

The following section contains a detailed description of the method LoadFactoryDefaults.

Method Overview

Method Name	Description
LoadFactoryDefaults	Resets all variables to their default value.

Communication Name	mSCloadfacdef
Invocation Access	AuthorizedClient, Service

Method Telegram Syntax

Method Invocation:				
sMN mSCloadfacdef				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	mSCloadfacdef	String	13	The method resets all variables to their default value.

Method Return Value:				
sAN mSCloadfacdef				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	mSCloadfacdef	String	13	The method resets all variables to their default value.

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 6D 53 43 6C 6F 61 64 66 61 63 64 65 66 20	[...]* MN mSCloadfacdef
Method Return Value:	[...]* 41 4E 20 6D 53 43 6C 6F 61 64 66 61 63 64 65 66 20	[...]* AN mSCloadfacdef

4.2. System Health (Diagnostics)

4.2.1. Variable: OpVoltageStatus

The following section contains a detailed description of the variable OpVoltageStatus.

Variable Overview

Variable Name	Description
OpVoltageStatus	Shows the current OpVoltageStatus as either INVALID, ERROR, WARNING or GOOD.
Read-Access	Always
Write-Access	No! (readonly)
UserType	
ThreeLevels	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN OpVoltageStatus				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	OpVoltageStatus	String	15	

Read Variable Response:				
sRA OpVoltageStatus <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	OpVoltageStatus	String	15	
Variable Data	data	ThreeLevels	0	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4F 70 56 6F 6C 74 61 67 65 53 74 61 74 75 73 20	[...]* RN OpVoltageStat us
Read Variable Response:	[...]* 52 41 20 4F 70 56 6F 6C 74 61 67 65 53 74 61 74 75 73 20 00	[...]* RA OpVoltageStat us .

4.2.2. Variable: illuminationActive

The following section contains a detailed description of the variable illuminationActive.

Variable Overview

Variable Name	Description
illuminationActive	Shows whether illumination is active.

Read-Access	Always
Write-Access	No! (readonly)

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN illuminationActive				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	illuminationActive	String	18	Shows whether illumination is active.

Read Variable Response:				
sRA illuminationActive <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	illuminationActive	String	18	Shows whether illumination is active.
Variable Data	data	Bool	1	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 69 6C 6C 75 6D 69 6E 61 74 69 6F 6E 41 63 74 69 76 65 20	[...]* RN illuminationA ctive
Read Variable Response:	[...]* 52 41 20 69 6C 6C 75 6D 69 6E 61 74 69 6F 6E 41 63 74 69 76 65 20 00	[...]* RA illuminationA ctive .

4.2.3. Variable: humidity

The following section contains a detailed description of the variable humidity.

Variable Overview

Variable Name	Description
humidity	Relative Humidity in %

Read-Access	Always
Write-Access	No! (readonly)

LReal	
Value Range	See specification IEEE 754 0.0..100.0

Variable Telegram Syntax

Read Variable:				
sRN humidity				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	humidity	String	8	Relative Humidity in %

Read Variable Response:				
sRA humidity <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	humidity	String	8	Relative Humidity in %
Variable Data	data	LReal	8	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 68 75 6D 69 64 69 74 79 20	[...]* RN humidity
Read Variable Response:	[...]* 52 41 20 68 75 6D 69 64 69 74 79 20 00 00 00 00 00 00 00 00	[...]* RA humidity

4.2.4. Variable: DeviceTime

The following section contains a detailed description of the variable DeviceTime.

Variable Overview

Variable Name	Description
DeviceTime	Device time in milliseconds. Returns the 32 LSBs of the device time which can be used to synchronize with the time stamp of a frame.

Read-Access	Always
Write-Access	No! (readonly)

UDInt	
Value Range	0..4294967295
Initialisation	0

Variable Telegram Syntax

Read Variable:				
sRN DeviceTime				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DeviceTime	String	10	Timestamp of the device in milliseconds. Returns the 32 LSBs of the timestamp which can be used to synchronize with the timestamp of the Frame.

Read Variable Response:				
sRA DeviceTime <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DeviceTime	String	10	Timestamp of the device in milliseconds. Returns the 32 LSBs of the timestamp which can be used to synchronize with the timestamp of the Frame.
Variable Data	data	UDInt	4	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 65 76 69 63 65 54 69 6D 65 20	[...]* RN DeviceTime
Read Variable Response:	[...]* 52 41 20 44 65 76 69 63 65 54 69 6D 65 20 00 00 00 00	[...]* RA DeviceTime



4.2.5. Electrical

4.2.5.1. Variable: ElectricalMonitoring

The following section contains a detailed description of the variable ElectricalMonitoring.

Variable Overview

Variable Name	Description
ElectricalMonitoring	Returns the following values: LEDsCurrent [A], OperationVoltage [V], MinimalVoltage [V], MaximalVoltage [V].

Read-Access	Always
Write-Access	No! (readonly)

UserType	
V3SElectricalMonitoring	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN ElectricalMonitoring				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ElectricalMonitoring	String	20	All available electrical value.

Read Variable Response:				
sRA ElectricalMonitoring <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ElectricalMonitoring	String	20	All available electrical value.
Variable Data	data	V3SElectricalMonitoring	16	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 6C 65 63 74 72 69 63 61 6C 4D 6F 6E 69 74 6F 72 69 6E 67 20	[...]* RN ElectricalMonitoring
Read Variable Response:	[...]* 52 41 20 45 6C 65 63 74 72 69 63 61 6C 4D 6F 6E 69 74 6F 72 69 6E 67 20 00 00 00 00 00 00 00 00 00 00 00 00 00 00	[...]* RA ElectricalMonitoring

4.2.5.2. Variable: ElectricalLimits

The following section contains a detailed description of the variable ElectricalLimits.

Variable Overview

Variable Name	Description
ElectricalLimits	Returns the following values: MinAllowedLEDsCurrent [A], MaxAllowedLEDsCurrent [A], MinAllowedOpVoltage [V], MaxAllowedOpVoltage [V].

Read-Access	Always
Write-Access	No! (readonly)

UserType	
V3SElectricalLimits	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN ElectricalLimits				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ElectricalLimits	String	16	The electrical limit values.

Read Variable Response:				
sRA ElectricalLimits <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ElectricalLimits	String	16	The electrical limit values.
Variable Data	data	V3SElectricalLimits	16	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 45 6C 65 63 74 72 69 63 61 6C 4C 69 6D 69 74 73 20	[...]* RN ElectricalLim its
Read Variable Response:	[...]* 52 41 20 45 6C 65 63 74 72 69 63 61 6C 4C 69 6D 69 74 73 20 00 00 00 00 40 A0 00 00 41 A0 00 00 41 E0 00 00	[...]* RA ElectricalLim itsA.. A..

4.2.6. System Log

4.2.6.1. Variable: EMsgInfo

The following section contains a detailed description of the variable EMsgInfo.

Variable Overview

Variable Name	Description
EMsgInfo	Error messages on logging level INFO, which are stored in volatile memory.

Communication Name	MSInfo
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	25
UserType	
ErrStructType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN MSInfo				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	MSInfo	String	6	Info messages which are stored in volatile memory. They are informations and do not indicate an error condition.

Read Variable Response:				
sRA MSInfo <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	MSInfo	String	6	Info messages which are stored in volatile memory. They are informations and do not indicate an error condition.
Variable Data	data	Array	2050	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4D 53 69 6E 66 6F 20	[...]* RN MSInfo



4.2.6.2. Variable: EMsgWarning

The following section contains a detailed description of the variable EMsgWarning.

Variable Overview

Variable Name	Description
EMsgWarning	Error messages on logging level WARNING, which are stored in non-volatile memory (EEPROM).

Communication Name	Mswarn
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	25
UserType	
ErrStructType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN Mswarn				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	Mswarn	String	6	Error message on level WARNING which is stored in non volatile memory (EEPROM) TODO: storing

Read Variable Response:				
sRA Mswarn <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	Mswarn	String	6	Error message on level WARNING which is stored in non volatile memory (EEPROM) TODO: storing
Variable Data	data	Array	2050	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4D 53 77 61 72 6E 20	[...]* RN Mswarn

4.2.6.3. Variable: EMsgError

The following section contains a detailed description of the variable EMsgError.

Variable Overview

Variable Name	Description
EMsgError	Error messages on logging level ERROR, which are stored in non-volatile memory (EEPROM).

Communication Name	MSerr
Read-Access	Always
Write-Access	No! (readonly)

Array	
Length	10
UserType	
ErrStructType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN MSerr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	MSerr	String	5	Error message on level ERROR which is stored in non volatile memory (EEPROM) TODO: storing

Read Variable Response:				
sRA MSerr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	MSerr	String	5	Error message on level ERROR which is stored in non volatile memory (EEPROM) TODO: storing
Variable Data	data	Array	820	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4D 53 65 72 72 20	[...]* RN MSerr

4.2.6.5. Variable: PowerOnCnt

The following section contains a detailed description of the variable PowerOnCnt.

Variable Overview

Variable Name	Description
PowerOnCnt	The number of power on cycles.

Communication Name	ODpwrc
Read-Access	Always
Write-Access	No! (readonly)

UDInt	
Value Range	0..4294967295
Initialisation	0

Variable Telegram Syntax

Read Variable:				
sRN ODpwrc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ODpwrc	String	6	The number of power on cycles

Read Variable Response:				
sRA ODpwrc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ODpwrc	String	6	The number of power on cycles
Variable Data	data	UDInt	4	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4F 44 70 77 72 63 20	[...]* RN ODpwrc
Read Variable Response:	[...]* 52 41 20 4F 44 70 77 72 63 20 00 00 00 00	[...]* RA ODpwrc



4.2.6.6. Variable: OpHours

The following section contains a detailed description of the variable OpHours.

Variable Overview

Variable Name	Description
OpHours	The total number of operating hours since last service reset. Can only be reset by SICK service.

Communication Name	ODoprh
Read-Access	Always
Write-Access	No! (readonly)

Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	h

Variable Telegram Syntax

Read Variable:				
sRN ODoprh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ODoprh	String	6	The total number of operating hours since last service reset. Can be reset by the service

Read Variable Response:				
sRA ODoprh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ODoprh	String	6	The total number of operating hours since last service reset. Can be reset by the service
Variable Data	data	Real	4	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4F 44 6F 70 72 68 20	[...]* RN ODoprh
Read Variable Response:	[...]* 52 41 20 4F 44 6F 70 72 68 20 00 00 00 00	[...]* RA ODoprh

4.2.6.7. Variable: DailyOpHours

The following section contains a detailed description of the variable DailyOpHours.

Variable Overview

Variable Name	Description
DailyOpHours	Runtime of the device since last power-on. Non-persistent variable.

Communication Name	ODopdaily
Read-Access	Always
Write-Access	No! (readonly)

Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	h

Variable Telegram Syntax

Read Variable:				
sRN ODopdaily				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ODopdaily	String	9	The runtime duration since last power on. Non persistent !

Read Variable Response:				
sRA ODopdaily <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ODopdaily	String	9	The runtime duration since last power on. Non persistent !
Variable Data	data	Real	4	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4F 44 6F 70 64 61 69 6C 79 20	[...]* RN ODopdaily
Read Variable Response:	[...]* 52 41 20 4F 44 6F 70 64 61 69 6C 79 20 00 00 00	[...]* RA ODopdaily

4.2.7. Temperature

4.2.7.1. Variable: TempLevel

The following section contains a detailed description of the variable TempLevel.

Variable Overview

Variable Name	Description
TempLevel	The current temperature level of the device (Good, Warning, Error).

Communication Name	TmpLvl
Read-Access	Always
Write-Access	No! (readonly)

UserType	
ThreeLevels	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN TmpLvl				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	TmpLvl	String	6	Temperature level

Read Variable Response:				
sRA TmpLvl <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	TmpLvl	String	6	Temperature level
Variable Data	data	ThreeLevels	0	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 54 6D 70 4C 76 6C 20	[...]* RN TmpLvl
Read Variable Response:	[...]* 52 41 20 54 6D 70 4C 76 6C 20 00	[...]* RA TmpLvl .

4.2.7.2. Variable: SysTemperatureCurrentValue

The following section contains a detailed description of the variable SysTemperatureCurrentValue.

Variable Overview

Variable Name	Description
SysTemperatureCurrentValue	Current system temperature of the device.

Read-Access	Always
Write-Access	No! (readonly)

Int	
Value Range	-32768..32767
Physical Unit	°C
Physical Unit Factor	10.0

Variable Telegram Syntax

Read Variable:				
sRN SysTemperatureCurrentValue				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	SysTemperatureCurrentValue	String	26	Current temperature of the device.

Read Variable Response:				
sRA SysTemperatureCurrentValue <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	SysTemperatureCurrentValue	String	26	Current temperature of the device.
Variable Data	data	Int	2	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 43 75 72 72 65 6E 74 56 61 6C 75 65 20	[...]* RN SysTemperatur eCurrentValue
Read Variable Response:	[...]* 52 41 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 43 75 72 72 65 6E 74 56 61 6C 75 65 20 00 00	[...]* RA SysTemperatur eCurrentValue ..

4.2.7.3. Variable: SysTemperatureWarningMargin



NOTE

The temperature warning margin is also effective when starting the device at temperatures below 0°C. The lower system temperature error threshold is 0°C. Please note that the system temperature is an internal(!) temperature. The device can still be started and operated below 0°C as specified.

Variable Overview

Variable Name	Description
SysTemperatureWarningMargin	Adjustable warning range for the sytem temperature. Margin relative to the system temperature error limit.

Read-Access	Always
Write-Access	Service

Int	
Value Range	-32768..32767
Initialisation	50
Physical Unit	°C
Physical Unit Factor	10.0

Variable Telegram Syntax

Read Variable:				
sRN SysTemperatureWarningMargin				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	SysTemperatureWarningMargin	String	27	The margin to systems error limit. If temperature raises above the margin, the device will change into warning state.

Read Variable Response:				
sRA SysTemperatureWarningMargin <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	SysTemperatureWarningMargin	String	27	The margin to systems error limit. If temperature raises above the margin, the device will change into warning state.
Variable Data	data	Int	2	

Write Variable:				
sWN SysTemperatureWarningMargin <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	SysTemperatureWarningMargin	String	27	The margin to systems error limit. If temperature raises above the margin, the device will change into warning state.
Variable Data	data	Int	2	



Write Variable Response:				
sWA SysTemperatureWarningMargin				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	SysTemperatureWarningMargin	String	27	The margin to systems error limit. If temperature raises above the margin, the device will change into warning state.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 57 61 72 6E 69 6E 67 4D 61 72 67 69 6E 20	[...]* RN SysTemperatur eWarningMargin
Read Variable Response:	[...]* 52 41 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 57 61 72 6E 69 6E 67 4D 61 72 67 69 6E 20 00 32	[...]* RA SysTemperatur eWarningMargin · 2
Write Variable:	[...]* 57 4E 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 57 61 72 6E 69 6E 67 4D 61 72 67 69 6E 20 00 32	[...]* WN SysTemperatur eWarningMargin · 2
Write Variable Response:	[...]* 57 41 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 57 61 72 6E 69 6E 67 4D 61 72 67 69 6E 20	[...]* WA SysTemperatur eWarningMargin

4.2.7.4. Variable: SysTemperatureErrorLimit

The following section contains a detailed description of the variable SysTemperatureErrorLimit.

Variable Overview

Variable Name	Description
SysTemperatureErrorLimit	Maximum system temperature. Exceeding this temperature will result in a device error and shutdown. May depend on configuration.

Read-Access	Always
Write-Access	No! (readonly)

Int	
Value Range	-32768..32767
Initialisation	750
Physical Unit	°C
Physical Unit Factor	10.0

Variable Telegram Syntax

Read Variable:				
sRN SysTemperatureErrorLimit				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	SysTemperatureErrorLimit	String	24	Systems highest allowed temperature. May depend on configuration.

Read Variable Response:				
sRA SysTemperatureErrorLimit <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	SysTemperatureErrorLimit	String	24	Systems highest allowed temperature. May depend on configuration.
Variable Data	data	Int	2	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 45 72 72 6F 72 4C 69 6D 69 74 20	[...]* RN SysTemperatur eErrorLimit
Read Variable Response:	[...]* 52 41 20 53 79 73 54 65 6D 70 65 72 61 74 75 72 65 45 72 72 6F 72 4C 69 6D 69 74 20 02 EE	[...]* RA SysTemperatur eErrorLimit .

4.2.7.5. Variable: TemperatureNames

The following section contains a detailed description of the variable TemperatureNames.

Variable Overview

Variable Name	Description
TemperatureNames	List of all names for the available temperatures listed by TemperatureValues.

Read-Access	Service
Write-Access	No! (readonly)

Array	
Length	0..128
FlexString	
Length	0..128

Variable Telegram Syntax

Read Variable:				
sRN TemperatureNames				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	TemperatureNames	String	16	List of all names for variable TemperatureValues

Read Variable Response:				
sRA TemperatureNames <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	TemperatureNames	String	16	List of all names for variable TemperatureValues
Variable Data	data	Array	16384	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 54 65 6D 70 65 72 61 74 75 72 65 4E 61 6D 65 73 20	[...]* RN TemperatureNa mes
Read Variable Response:	[...]* 52 41 20 54 65 6D 70 65 72 61 74 75 72 65 4E 61 6D 65 73 20 00 00	[...]* RA TemperatureNa mes ..

4.2.7.6. Variable: TemperatureValues

The following section contains a detailed description of the variable TemperatureValues.

Variable Overview

Variable Name	Description
TemperatureValues	List of all available temperatures. See also TemperatureNames.

Read-Access	Service
Write-Access	No! (readonly)

Array	
Length	0..128
Int	
Value Range	-32768..32767
Physical Unit	°C
Physical Unit Factor	10.0



Variable Telegram Syntax

Read Variable:				
sRN TemperatureValues				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	TemperatureValues	String	17	List of all available temperatures. Ordered by significance in terms of calibration.

Read Variable Response:				
sRA TemperatureValues <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	TemperatureValues	String	17	List of all available temperatures. Ordered by significance in terms of calibration.
Variable Data	data	Array	256	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 54 65 6D 70 65 72 61 74 75 72 65 56 61 6C 75 65 73 20	[...]* RN TemperatureVa lues
Read Variable Response:	[...]* 52 41 20 54 65 6D 70 65 72 61 74 75 72 65 56 61 6C 75 65 73 20 00 00	[...]* RA TemperatureVa lues ..

4.2.8. Digital IO

4.2.8.1. Variable: digitalIOStatus

The following section contains a detailed description of the variable digitalIOStatus.

Variable Overview

Variable Name	Description
digitalIOStatus	Status of the digital outputs. True if neither overload nor any pin error are true.

Read-Access	Always
Write-Access	No! (readonly)

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN digitalIOStatus				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	digitalIOStatus	String	15	Digital output status, true if neither overload nor any pin error.

Read Variable Response:				
sRA digitalIOStatus <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	digitalIOStatus	String	15	Digital output status, true if neither overload nor any pin error.
Variable Data	data	Bool	1	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 64 69 67 69 74 61 6C 49 4F 53 74 61 74 75 73 20	[...]* RN digitalIOStat us
Read Variable Response:	[...]* 52 41 20 64 69 67 69 74 61 6C 49 4F 53 74 61 74 75 73 20 00	[...]* RA digitalIOStat us .

4.2.8.2. Variable: doutOverload

The following section contains a detailed description of the variable doutOverload.

Variable Overview

Variable Name	Description
doutOverload	Digital output overheated, e.g. due to an overload.

Communication Name	DoOvrlD
Read-Access	Always
Write-Access	No! (readonly)

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN DoOvrlD				

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DoOvrlD	String	7	Digital output overheated, i.e. due to a overload

Read Variable Response:				
sRA DoOvrlD <data>				

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DoOvrlD	String	7	Digital output overheated, i.e. due to a overload
Variable Data	data	Bool	1	

Variable Telegram Examples

Example: Default Values	
Variable telegram examples with data set to default values.	

Read Variable:	[...]* 52 4E 20 44 6F 4F 76 72 6C 64 20	[...]* RN DoOvrlD
Read Variable Response:	[...]* 52 41 20 44 6F 4F 76 72 6C 64 20 00	[...]* RA DoOvrlD .

4.2.8.3. Variable: doutPinError

The following section contains a detailed description of the variable doutPinError.

Variable Overview

Variable Name	Description
doutPinError	Digital output error due to a short circuit.

Communication Name	DoPinErr
Read-Access	Always
Write-Access	No! (readonly)

DCont		
Bit Length	32	
out1		
0.0	Bool	
	Value Range	False, True
	Initialisation	False
out2		
0.1	Bool	
	Value Range	False, True
	Initialisation	False
out3		
0.2	Bool	
	Value Range	False, True
	Initialisation	False
out4		
0.3	Bool	
	Value Range	False, True
	Initialisation	False
out5		
0.4	Bool	
	Value Range	False, True
	Initialisation	False
out6		
0.5	Bool	
	Value Range	False, True
	Initialisation	False
out7		
0.6	Bool	
	Value Range	False, True
	Initialisation	False
out8		
0.7	Bool	
	Value Range	False, True
	Initialisation	False



Variable Telegram Syntax

Read Variable:				
sRN DoPinErr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DoPinErr	String	8	Digital output health, if set, a short circuit occurred

Read Variable Response:				
sRA DoPinErr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DoPinErr	String	8	Digital output health, if set, a short circuit occurred
Variable Data	data	DCont	4	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 6F 50 69 6E 45 72 72 20	[...]* RN DoPinErr
Read Variable Response:	[...]* 52 41 20 44 6F 50 69 6E 45 72 72 20 00 00 00 00	[...]* RA DoPinErr

4.2.9. Service Information

4.2.9.1. Variable: DeviceIdent

The following section contains a detailed description of the variable DeviceIdent.

Variable Overview

Variable Name	Description
DeviceIdent	Identification of the device via product name and firmware version (=CID version).

Read-Access	Always
Write-Access	No! (readonly)

Struct	
Name	
FlexString	
Length	0..32
Initialisation	Visionary-T Mini CX V3S105-1x
Version	
FlexString	
Length	0..50
Initialisation	2.1.0.3341R

Variable Telegram Syntax

Read Variable:				
sRN DeviceIdent				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DeviceIdent	String	11	Unique Identification of device

Read Variable Response:				
sRA DeviceIdent <Name> <Version>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DeviceIdent	String	11	Unique Identification of device
Variable Data 1	Name	FlexString	32	
Variable Data 2	Version	FlexString	50	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 65 76 69 63 65 49 64 65 6E 74 20	[...]* RN DeviceIdent
Read Variable Response:	[...]* 52 41 20 44 65 76 69 63 65 49 64 65 6E 74 20 00 1D 56 69 73 69 6F 6E 61 72 79 2D 54 20 4D 69 6E 69 20 43 58 20 56 33 53 31 30 35 2D 31 78 00 0B 32 2E 31 2E 30 2E 33 33 34 31 52	[...]* RA DeviceIdent · ·Visionary-T Min i CX V3S105-1x· 2.1.0.3341R

4.2.9.2. Variable: LocationName

The following section contains a detailed description of the variable LocationName.

Variable Overview

Variable Name	Description
LocationName	Location of the device (as set by user).

Read-Access	Always
Write-Access	Always

FlexString	
Length	0..16
Initialisation	not defined

Variable Telegram Syntax

Read Variable:				
sRN LocationName				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	LocationName	String	12	Location of Device (set by user)

Read Variable Response:				
sRA LocationName <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	LocationName	String	12	Location of Device (set by user)
Variable Data	data	FlexString	16	

Write Variable:				
sWN LocationName <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	LocationName	String	12	Location of Device (set by user)



Write Variable:				
sWN LocationName <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Variable Data	data	FlexString	16	

Write Variable Response:				
sWA LocationName				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	LocationName	String	12	Location of Device (set by user)

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4C 6F 63 61 74 69 6F 6E 4E 61 6D 65 20	[...]* RN LocationName
Read Variable Response:	[...]* 52 41 20 4C 6F 63 61 74 69 6F 6E 4E 61 6D 65 20 00 0B 6E 6F 74 20 64 65 66 69 6E 65 64	[...]* RA LocationName ..not defined
Write Variable:	[...]* 57 4E 20 4C 6F 63 61 74 69 6F 6E 4E 61 6D 65 20 00 0B 6E 6F 74 20 64 65 66 69 6E 65 64	[...]* WN LocationName ..not defined
Write Variable Response:	[...]* 57 41 20 4C 6F 63 61 74 69 6F 6E 4E 61 6D 65 20	[...]* WA LocationName

4.2.9.3. Variable: Manufacturer

The following section contains a detailed description of the variable Manufacturer.

Variable Overview

Variable Name	Description
Manufacturer	Manufacturer

Communication Name	Dlmanf
Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..18
Initialisation	SICK AG

Variable Telegram Syntax

Read Variable:				
sRN DImanf				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DImanf	String	6	Manufacturer

Read Variable Response:				
sRA DImanf <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DImanf	String	6	Manufacturer
Variable Data	data	FlexString	18	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 6D 61 6E 66 20	[...]* RN DImanf
Read Variable Response:	[...]* 52 41 20 44 49 6D 61 6E 66 20 00 07 53 49 43 4B 20 41 47	[...]* RA DImanf ··SICK AG

4.2.9.4. Variable: FirmwareVersion



NOTE

Be aware that the firmware version mentioned at official SICK sources will refer to the CID version rather than this variable.

Variable Overview

Variable Name	Description
FirmwareVersion	Firmware version of the device.

Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..16
Initialisation	XXXXXXXXXX

Variable Telegram Syntax

Read Variable:				
sRN FirmwareVersion				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	FirmwareVersion	String	15	Version of the application software

Read Variable Response:				
sRA FirmwareVersion <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	FirmwareVersion	String	15	Version of the application software
Variable Data	data	FlexString	16	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 46 69 72 6D 77 61 72 65 56 65 72 73 69 6F 6E 20	[...]* RN FirmwareVersion
Read Variable Response:	[...]* 52 41 20 46 69 72 6D 77 61 72 65 56 65 72 73 69 6F 6E 20 00 0A 58 58 58 58 58 58 58 58	[...]* RA FirmwareVersion ··XXXXXXXXXX

4.2.9.5. Variable: DeviceType

The following section contains a detailed description of the variable DeviceType.

Variable Overview

Variable Name	Description
DeviceType	Specific product name within the product family.

Communication Name	Dtype
Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..18
Initialisation	V3SXXX-XXXXXXXX

Variable Telegram Syntax

Read Variable:				
sRN DItYPE				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DItYPE	String	6	DeviceType

Read Variable Response:				
sRA DItYPE <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DItYPE	String	6	DeviceType
Variable Data	data	FlexString	18	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 74 79 70 65 20	[...]* RN DItYPE
Read Variable Response:	[...]* 52 41 20 44 49 74 79 70 65 20 00 0E 56 33 53 58 58 58 2D 58 58 58 58 58 58 58	[...]* RA DItYPE ··V3SX XX-XXXXXXX

4.2.9.6. Variable: CidVersion



NOTE

This variable is referenced as SDD version in the SOPAS ET GUI. Official SICK sources will refer to this variable as firmware version rather than the variable FirmwareVersion.

Variable Overview

Variable Name	Description
CidVersion	Version of communication interface description

Read-Access	Always
Write-Access	No! (readonly)

UserType	
CidVersion	See the chapter "User Types" for details.



Variable Telegram Syntax

Read Variable:				
sRN CidVersion				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	CidVersion	String	10	Version of communication interface description

Read Variable Response:				
sRA CidVersion <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	CidVersion	String	10	Version of communication interface description
Variable Data	data	CidVersion	11	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 43 69 64 56 65 72 73 69 6F 6E 20	[...]* RN CidVersion
Read Variable Response:	[...]* 52 41 20 43 69 64 56 65 72 73 69 6F 6E 20 00 02 00 01 00 00 00 0D 0D 03	[...]* RA CidVersion

4.2.9.7. Variable: OrderNumber

The following section contains a detailed description of the variable OrderNumber.

Variable Overview

Variable Name	Description
OrderNumber	The value of this variable matches the SICK part number (order number) of the device.

Communication Name	OrdNum
Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..32
Initialisation	1234567



Variable Telegram Syntax

Read Variable:				
sRN OrdNum				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	OrdNum	String	6	This variable's value matches the SICK order number (million number) in SAP.

Read Variable Response:				
sRA OrdNum <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	OrdNum	String	6	This variable's value matches the SICK order number (million number) in SAP.
Variable Data	data	FlexString	32	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4F 72 64 4E 75 6D 20	[...]* RN OrdNum
Read Variable Response:	[...]* 52 41 20 4F 72 64 4E 75 6D 20 00 07 31 32 33 34 35 36 37	[...]* RA OrdNum ..1234 567

4.2.9.8. Variable: SerialNumber

The following section contains a detailed description of the variable SerialNumber.

Variable Overview

Variable Name	Description
SerialNumber	Serial number of the device.

Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..8
Initialisation	12345678

Variable Telegram Syntax

Read Variable:				
sRN SerialNumber				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	SerialNumber	String	12	serial number of device

Read Variable Response:				
sRA SerialNumber <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	SerialNumber	String	12	serial number of device
Variable Data	data	FlexString	8	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 53 65 72 69 61 6C 4E 75 6D 62 65 72 20	[...]* RN SerialNumber
Read Variable Response:	[...]* 52 41 20 53 65 72 69 61 6C 4E 75 6D 62 65 72 20 00 08 31 32 33 34 35 36 37 38	[...]* RA SerialNumber ..12345678

4.2.9.9. Variable: KernelVersion

The following section contains a detailed description of the variable KernelVersion.

Variable Overview

Variable Name	Description
KernelVersion	This variable contains the version of the Linux kernel.

Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..80



Variable Telegram Syntax

Read Variable:				
sRN KernelVersion				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	KernelVersion	String	13	Returns the version of the Linux Kernel.

Read Variable Response:				
sRA KernelVersion <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	KernelVersion	String	13	Returns the version of the Linux Kernel.
Variable Data	data	FlexString	80	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 4B 65 72 6E 65 6C 56 65 72 73 69 6F 6E 20	[...]* RN KernelVersion
Read Variable Response:	[...]* 52 41 20 4B 65 72 6E 65 6C 56 65 72 73 69 6F 6E 20 00 00	[...]* RA KernelVersion ..

4.2.9.10. Variable: BootloaderIdentification

The following section contains a detailed description of the variable BootloaderIdentification.

Variable Overview

Variable Name	Description
BootloaderIdentification	This variable contains the version of the bootloader.

Communication Name	FIBootloaderIdent
Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..80

Variable Telegram Syntax

Read Variable:				
sRN FIBootloaderIdent				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	FIBootloaderIdent	String	17	Shows the identification string of the current bootloader.

Read Variable Response:				
sRA FIBootloaderIdent <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	FIBootloaderIdent	String	17	Shows the identification string of the current bootloader.
Variable Data	data	FlexString	80	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 46 49 42 6F 6F 74 6C 6F 61 64 65 72 49 64 65 6E 74 20	[...]* RN FIBootloaderI dent
Read Variable Response:	[...]* 52 41 20 46 49 42 6F 6F 74 6C 6F 61 64 65 72 49 64 65 6E 74 20 00 00	[...]* RA FIBootloaderI dent ..

4.2.9.11. Variable: FpgaBitstreamVersion

The following section contains a detailed description of the variable FpgaBitstreamVersion.

Variable Overview

Variable Name	Description
FpgaBitstreamVersion	This variable contains the version of the FPGA bitstream.

Read-Access	Always
Write-Access	No! (readonly)

FlexString	
Length	0..20
Initialisation	255.255



Variable Telegram Syntax

Read Variable:				
sRN FpgaBitstreamVersion				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	FpgaBitstreamVersion	String	20	Returns the version of the FPGA bitstream: Will return 0.0 or 255.255 if FPGA bitstream is corrupted.

Read Variable Response:				
sRA FpgaBitstreamVersion <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	FpgaBitstreamVersion	String	20	Returns the version of the FPGA bitstream: Will return 0.0 or 255.255 if FPGA bitstream is corrupted.
Variable Data	data	FlexString	20	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 46 70 67 61 42 69 74 73 74 72 65 61 6D 56 65 72 73 69 6F 6E 20	[...]* RN FpgaBitstream Version
Read Variable Response:	[...]* 52 41 20 46 70 67 61 42 69 74 73 74 72 65 61 6D 56 65 72 73 69 6F 6E 20 00 07 32 35 35 2E 32 35 35	[...]* RA FpgaBitstream Version ..255.25 5



4.3. Frontend Settings



4.3.1. Mounting Settings

4.3.1.1. Variable: sensorPosition

The following section contains a detailed description of the variable sensorPosition.

Variable Overview

Variable Name	Description
sensorPosition	Sensor position in 3D Cartesian coordinates relative to a reference point (0,0,0) in world coordinates.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
Vector3	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN sensorPosition				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	sensorPosition	String	14	Sensor position in 3D Cartesian coordinates.

Read Variable Response:				
sRA sensorPosition <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	sensorPosition	String	14	Sensor position in 3D Cartesian coordinates.
Variable Data	data	Vector3	12	

Write Variable:				
sWN sensorPosition <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	sensorPosition	String	14	Sensor position in 3D Cartesian coordinates.
Variable Data	data	Vector3	12	

Write Variable Response:				
sWA sensorPosition				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	sensorPosition	String	14	Sensor position in 3D Cartesian coordinates.



Variable Telegram Examples

Custom Value 1		
read/write variable sensorPosition with value of <X=0mm, Y=0mm, Z=3000mm> (TOP-DOWN)		
Read Variable:	[...]* 52 4E 20 73 65 6E 73 6F 72 50 6F 73 69 74 69 6F 6E 20	[...]* RN sensorPosition
Read Variable Response:	[...]* 52 41 20 73 65 6E 73 6F 72 50 6F 73 69 74 69 6F 6E 20 00 00 00 00 00 00 00 00 00 00 45 3B 80 00	[...]* RA sensorPositionEi;
Write Variable:	[...]* 57 4E 20 73 65 6E 73 6F 72 50 6F 73 69 74 69 6F 6E 20 00 00 00 00 00 00 00 00 00 00 45 3B 80 00	[...]* WN sensorPositionEi;
Write Variable Response:	[...]* 57 41 20 73 65 6E 73 6F 72 50 6F 73 69 74 69 6F 6E 20	[...]* WA sensorPosition

4.3.1.2. Variable: sensorOrientation

The following section contains a detailed description of the variable sensorOrientation.

Variable Overview

Variable Name	Description
sensorOrientation	Sensor orientation in Euler angles. The rotation is applied in the order X, Y, Z.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
RotationVector3f	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN sensorOrientation				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	sensorOrientation	String	17	Sensor orientation in Euler angles.

Read Variable Response:				
sRA sensorOrientation <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	sensorOrientation	String	17	Sensor orientation in Euler angles.
Variable Data	data	RotationVector3f	12	



Write Variable:				
sWN sensorOrientation <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	sensorOrientation	String	17	Sensor orientation in Euler angles.
Variable Data	data	RotationVector3f	12	

Write Variable Response:				
sWA sensorOrientation				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	sensorOrientation	String	17	Sensor orientation in Euler angles.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 73 65 6E 73 6F 72 4F 72 69 65 6E 74 61 74 69 6F 6E 20	[...]* RN sensorOrientation
Read Variable Response:	[...]* 52 41 20 73 65 6E 73 6F 72 4F 72 69 65 6E 74 61 74 69 6F 6E 20 00 00 00 00 00 00 00 00 00 00 00	[...]* RA sensorOrientation
Write Variable:	[...]* 57 4E 20 73 65 6E 73 6F 72 4F 72 69 65 6E 74 61 74 69 6F 6E 20 00 00 00 00 00 00 00 00 00 00 00	[...]* WN sensorOrientation
Write Variable Response:	[...]* 57 41 20 73 65 6E 73 6F 72 4F 72 69 65 6E 74 61 74 69 6F 6E 20	[...]* WA sensorOrientation

4.3.1.3. Variable: cameraModel

The following section contains a detailed description of the variable cameraModel.

Variable Overview

Variable Name	Description
cameraModel	Information about the camera model, which contains: CameraID, ImageWidth, ImageHeight, FocalDistance, FocalDistanceUnit, IntrinsicK-Matrix, WorldToSensorDistortion-Matrix, SensorToWorldDistortion-Matrix, Transform-Matrix

Read-Access	Always
Write-Access	Always

UserType	
CameraModel	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN cameraModel				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	cameraModel	String	11	Information about the camera model, which contains: CameraID, ImageWidth, ImageHeight, FocalDistance, FocalDistanceUnit, IntrinsicK-Matrix, WorldToSensorDistortion-Matrix, SensorToWorldDistortion-Matrix, Transform-Matrix

Read Variable Response:				
sRA cameraModel <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	cameraModel	String	11	Information about the camera model, which contains: CameraID, ImageWidth, ImageHeight, FocalDistance, FocalDistanceUnit, IntrinsicK-Matrix, WorldToSensorDistortion-Matrix, SensorToWorldDistortion-Matrix, Transform-Matrix
Variable Data	data	CameraModel	368	

Write Variable:				
sWN cameraModel <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	cameraModel	String	11	Information about the camera model, which contains: CameraID, ImageWidth, ImageHeight, FocalDistance, FocalDistanceUnit, IntrinsicK-Matrix, WorldToSensorDistortion-Matrix, SensorToWorldDistortion-Matrix, Transform-Matrix
Variable Data	data	CameraModel	368	

Write Variable Response:				
sWA cameraModel				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	cameraModel	String	11	Information about the camera model, which contains: CameraID, ImageWidth, ImageHeight, FocalDistance, FocalDistanceUnit, IntrinsicK-Matrix, WorldToSensorDistortion-Matrix, SensorToWorldDistortion-Matrix, Transform-Matrix

4.3.1.4. Variable: cameraToWorldMatrix



NOTE

The sensor position translation vector also contains the offset along the z axis of the camera reference point to the focus point f2rc.

Variable Overview

Variable Name	Description
cameraToWorldMatrix	Camera to world transformation matrix, contains sensor position and orientation as 4 by 4 matrix.
Communication Name	CWMat
Read-Access	Always
Write-Access	No! (readonly)
UserType	
Matrix4x4	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN CWMat				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	CWMat	String	5	Camera to world transformation matrix, contains sensor position and orientation as 4 by 4 matrix. This variable is read-only.

Read Variable Response:				
sRA CWMat <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	CWMat	String	5	Camera to world transformation matrix, contains sensor position and orientation as 4 by 4 matrix. This variable is read-only.
Variable Data	data	Matrix4x4	64	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 43 57 4D 61 74 20	[...]* RN CWMat
Read Variable Response:	[...]* 52 41 20 43 57 4D 61 74 20 3F 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 80 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 00 3F 80 00 00	[...]* RA CWMat ?.....?????..



4.3.2. Camera and Acquisition Controls

4.3.2.1. Variable: frontendMode

The following section contains a detailed description of the variable frontendMode.

Variable Overview

Variable Name	Description
frontendMode	(Persistent) state that specifies the frontend mode of the device (continuous, stop). Stop the frontend and call SingleStep for triggered single image acquisition.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Enum8			
Default Value		CONTINUOUS	
Value	Name	Description	
0	CONTINUOUS		
1	STOP		

Variable Telegram Syntax

Read Variable:				
sRN frontendMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	frontendMode	String	12	(Persistent) state that specifies the mode of the device (continuous, stop, externalTrigger)

Read Variable Response:				
sRA frontendMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	frontendMode	String	12	(Persistent) state that specifies the mode of the device (continuous, stop, externalTrigger)
Variable Data	data	Enum8	1	

Write Variable:				
sWN frontendMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	frontendMode	String	12	(Persistent) state that specifies the mode of the device (continuous, stop, externalTrigger)
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA frontendMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge



Write Variable Response:				
sWA frontendMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Variable	frontendMode	String	12	(Persistent) state that specifies the mode of the device (continuous, stop, externalTrigger)

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 66 72 6F 6E 74 65 6E 64 4D 6F 64 65 20	[...]* RN frontendMode
Read Variable Response:	[...]* 52 41 20 66 72 6F 6E 74 65 6E 64 4D 6F 64 65 20 00	[...]* RA frontendMode .
Write Variable:	[...]* 57 4E 20 66 72 6F 6E 74 65 6E 64 4D 6F 64 65 20 00	[...]* WN frontendMode .
Write Variable Response:	[...]* 57 41 20 66 72 6F 6E 74 65 6E 64 4D 6F 64 65 20	[...]* WA frontendMode

4.3.2.2. Method: PlayStart

The following section contains a detailed description of the method PlayStart.

Method Overview

Method Name	Description
PlayStart	Starts the continuous image acquisition and streaming of camera data.

Communication Name	PLAYSTART
Invocation Access	Always

Method Telegram Syntax

Method Invocation:				
sMN PLAYSTART				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	PLAYSTART	String	9	Activates playback.

Method Return Value:				
sAN PLAYSTART				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	PLAYSTART	String	9	Activates playback.

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 50 4C 41 59 53 54 41 52 54 20	[...]* MN PLAYSTART
Method Return Value:	[...]* 41 4E 20 50 4C 41 59 53 54 41 52 54 20	[...]* AN PLAYSTART

4.3.2.3. Method: SingleStep



NOTE

The first image requested via SingleStep after the frontend has been stopped, will have a higher than usual latency. The camera frontend needs to return into an equilibrium state after it has been stopped. Therefore, the first triggered image will only be streamed after 16 frames have been discarded internally. The latency will be normal for all following images, as the frontend will run in continuous mode but only stream the images when triggered via SingleStep.

Method Overview

Method Name	Description
SingleStep	Software trigger to acquire a single frame after the frontend has been stopped (single frame acquisition).

Communication Name	PLAYNEXT
Invocation Access	Always

Method Telegram Syntax

Method Invocation:				
sMN PLAYNEXT				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	PLAYNEXT	String	8	Request single image from device.

Method Return Value:				
sAN PLAYNEXT				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	PLAYNEXT	String	8	Request single image from device.

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 50 4C 41 59 4E 45 58 54 20	[...]* MN PLAYNEXT
Method Return Value:	[...]* 41 4E 20 50 4C 41 59 4E 45 58 54 20	[...]* AN PLAYNEXT

4.3.2.4. Method: PlayStop

The following section contains a detailed description of the method PlayStop.

Method Overview

Method Name	Description
PlayStop	Stops the continuous image acquisition and streaming of camera data.

Communication Name	PLAYSTOP
Invocation Access	Always

Method Telegram Syntax

Method Invocation:				
sMN PLAYSTOP				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sMN	String	3	Request (SOPAS Method by Name)
Method	PLAYSTOP	String	8	Stops playback.

Method Return Value:				
sAN PLAYSTOP				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sAN	String	3	Result (SOPAS Method Result)
Method	PLAYSTOP	String	8	Stops playback.

Method Telegram Examples

Example: Default Values		
Method telegram examples with parameter data and return value data set to default values.		
Method Invocation:	[...]* 4D 4E 20 50 4C 41 59 53 54 4F 50 20	[...]* MN PLAYSTOP
Method Return Value:	[...]* 41 4E 20 50 4C 41 59 53 54 4F 50 20	[...]* AN PLAYSTOP



4.3.2.5. Variable: enableCropping

The following section contains a detailed description of the variable enableCropping.

Variable Overview

Variable Name	Description
enableCropping	Enables cropping of the image to e.g. reduce network data traffic

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN enableCropping				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enableCropping	String	14	Enables cropping of the image.

Read Variable Response:				
sRA enableCropping <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enableCropping	String	14	Enables cropping of the image.
Variable Data	data	Bool	1	

Write Variable:				
sWN enableCropping <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enableCropping	String	14	Enables cropping of the image.
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enableCropping				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enableCropping	String	14	Enables cropping of the image.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 61 62 6C 65 43 72 6F 70 70 69 6E 67 20	[...]* RN enableCroppin g
Read Variable Response:	[...]* 52 41 20 65 6E 61 62 6C 65 43 72 6F 70 70 69 6E 67 20 00	[...]* RA enableCroppin g .
Write Variable:	[...]* 57 4E 20 65 6E 61 62 6C 65 43 72 6F 70 70 69 6E 67 20 00	[...]* WN enableCroppin g .
Write Variable Response:	[...]* 57 41 20 65 6E 61 62 6C 65 43 72 6F 70 70 69 6E 67 20	[...]* WA enableCroppin g

4.3.2.6. Variable: croppingPositionX

The following section contains a detailed description of the variable croppingPositionX.

Variable Overview

Variable Name	Description
croppingPositionX	The position of the upper left corner of the cropping region along the x-axis.

Communication Name	cropPosX
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..423
Initialisation	0
Physical Unit	px

Variable Telegram Syntax

Read Variable:				
sRN cropPosX				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	cropPosX	String	8	The position of the cropping region along the x-axis.

Read Variable Response:				
sRA cropPosX <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	cropPosX	String	8	The position of the cropping region along the x-axis.
Variable Data	data	UInt	2	



Write Variable:				
sWN cropPosX <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	cropPosX	String	8	The position of the cropping region along the x-axis.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA cropPosX				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	cropPosX	String	8	The position of the cropping region along the x-axis.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 63 72 6F 70 50 6F 73 58 20	[...]* RN cropPosX
Read Variable Response:	[...]* 52 41 20 63 72 6F 70 50 6F 73 58 20 00 00	[...]* RA cropPosX ..
Write Variable:	[...]* 57 4E 20 63 72 6F 70 50 6F 73 58 20 00 00	[...]* WN cropPosX ..
Write Variable Response:	[...]* 57 41 20 63 72 6F 70 50 6F 73 58 20	[...]* WA cropPosX

4.3.2.7. Variable: croppingPositionY

The following section contains a detailed description of the variable croppingPositionY.

Variable Overview

Variable Name	Description
croppingPositionY	The position of the upper left corner of the cropping region along the y-axis.

Communication Name	cropPosY
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..511
Initialisation	0
Physical Unit	px



Variable Telegram Syntax

Read Variable:				
sRN cropPosY				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	cropPosY	String	8	The position of the cropping region along the y-axis.

Read Variable Response:				
sRA cropPosY <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	cropPosY	String	8	The position of the cropping region along the y-axis.
Variable Data	data	UInt	2	

Write Variable:				
sWN cropPosY <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	cropPosY	String	8	The position of the cropping region along the y-axis.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA cropPosY				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	cropPosY	String	8	The position of the cropping region along the y-axis.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 63 72 6F 70 50 6F 73 59 20	[...]* RN cropPosY
Read Variable Response:	[...]* 52 41 20 63 72 6F 70 50 6F 73 59 20 00 00	[...]* RA cropPosY ..
Write Variable:	[...]* 57 4E 20 63 72 6F 70 50 6F 73 59 20 00 00	[...]* WN cropPosY ..
Write Variable Response:	[...]* 57 41 20 63 72 6F 70 50 6F 73 59 20	[...]* WA cropPosY

4.3.2.8. Variable: croppingWidth

The following section contains a detailed description of the variable croppingWidth.

Variable Overview

Variable Name	Description
croppingWidth	The width of the cropping region in pixels.

Communication Name	cropWidth
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..512
Initialisation	512
Physical Unit	px

Variable Telegram Syntax

Read Variable:				
sRN croppingWidth				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	croppingWidth	String	9	The width of the cropping region in pixels.

Read Variable Response:				
sRA croppingWidth <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	croppingWidth	String	9	The width of the cropping region in pixels.
Variable Data	data	UInt	2	

Write Variable:				
sWN croppingWidth <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	croppingWidth	String	9	The width of the cropping region in pixels.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA croppingWidth				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	croppingWidth	String	9	The width of the cropping region in pixels.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 63 72 6F 70 57 69 64 74 68 20	[...]* RN cropWidth
Read Variable Response:	[...]* 52 41 20 63 72 6F 70 57 69 64 74 68 20 02 00	[...]* RA cropWidth ..
Write Variable:	[...]* 57 4E 20 63 72 6F 70 57 69 64 74 68 20 02 00	[...]* WN cropWidth ..
Write Variable Response:	[...]* 57 41 20 63 72 6F 70 57 69 64 74 68 20	[...]* WA cropWidth

4.3.2.9. Variable: croppingHeight

The following section contains a detailed description of the variable croppingHeight.

Variable Overview

Variable Name	Description
croppingHeight	The height of the cropping region in pixels.

Communication Name	cropHeight
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..424
Initialisation	424
Physical Unit	px

Variable Telegram Syntax

Read Variable:				
sRN cropHeight				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	cropHeight	String	10	The width of the cropping region in pixels.

Read Variable Response:				
sRA cropHeight <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	cropHeight	String	10	The width of the cropping region in pixels.
Variable Data	data	UInt	2	



Write Variable:				
sWN cropHeight <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	cropHeight	String	10	The width of the cropping region in pixels.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA cropHeight				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	cropHeight	String	10	The width of the cropping region in pixels.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 63 72 6F 70 48 65 69 67 68 74 20	[...]* RN cropHeight
Read Variable Response:	[...]* 52 41 20 63 72 6F 70 48 65 69 67 68 74 20 01 A8	[...]* RA cropHeight .
Write Variable:	[...]* 57 4E 20 63 72 6F 70 48 65 69 67 68 74 20 01 A8	[...]* WN cropHeight .
Write Variable Response:	[...]* 57 41 20 63 72 6F 70 48 65 69 67 68 74 20	[...]* WA cropHeight

4.3.2.10. Variable: binningOption

The following section contains a detailed description of the variable binningOption.

Variable Overview

Variable Name	Description
binningOption	Enum of different binning options (none, 2x2, 4x4).

Read-Access	Always
Write-Access	AuthorizedClient, Service

Enum8		
Default Value		NONE
	Value	Name
	0	NONE
	1	TWO_BY_TWO
	2	FOUR_BY_FOUR



Variable Telegram Syntax

Read Variable:				
sRN binningOption				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	binningOption	String	13	

Read Variable Response:				
sRA binningOption <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	binningOption	String	13	
Variable Data	data	Enum8	1	

Write Variable:				
sWN binningOption <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	binningOption	String	13	
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA binningOption				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	binningOption	String	13	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 62 69 6E 6E 69 6E 67 4F 70 74 69 6F 6E 20	[...]* RN binningOption
Read Variable Response:	[...]* 52 41 20 62 69 6E 6E 69 6E 67 4F 70 74 69 6F 6E 20 00	[...]* RA binningOption .
Write Variable:	[...]* 57 4E 20 62 69 6E 6E 69 6E 67 4F 70 74 69 6F 6E 20 00	[...]* WN binningOption .
Write Variable Response:	[...]* 57 41 20 62 69 6E 6E 69 6E 67 4F 70 74 69 6F 6E 20	[...]* WA binningOption

4.3.2.11. Variable: framePeriodUs

The following section contains a detailed description of the variable framePeriodUs.

Variable Overview

Variable Name	Description
framePeriodUs	The frame period of the camera in microseconds.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UDInt	
Value Range	33333..1000000
Initialisation	40000
Physical Unit	µs

Variable Telegram Syntax

Read Variable:	
sRN framePeriodUs	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	framePeriodUs	String	13	The frame period of the 3D frontend used.

Read Variable Response:	
sRA framePeriodUs <data>	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	framePeriodUs	String	13	The frame period of the 3D frontend used.
Variable Data	data	UDInt	4	

Write Variable:	
sWN framePeriodUs <data>	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	framePeriodUs	String	13	The frame period of the 3D frontend used.
Variable Data	data	UDInt	4	

Write Variable Response:	
sWA framePeriodUs	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	framePeriodUs	String	13	The frame period of the 3D frontend used.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 66 72 61 6D 65 50 65 72 69 6F 64 55 73 20	[...]* RN framePeriodUs
Read Variable Response:	[...]* 52 41 20 66 72 61 6D 65 50 65 72 69 6F 64 55 73 20 00 00 9C 40	[...]* RA framePeriodUs ..@
Write Variable:	[...]* 57 4E 20 66 72 61 6D 65 50 65 72 69 6F 64 55 73 20 00 00 9C 40	[...]* WN framePeriodUs ..@
Write Variable Response:	[...]* 57 41 20 66 72 61 6D 65 50 65 72 69 6F 64 55 73 20	[...]* WA framePeriodUs

4.3.2.12. Variable: enableEdgeCorrection

The following section contains a detailed description of the variable enableEdgeCorrection.

Variable Overview

Variable Name	Description
enableEdgeCorrection	Enable/disable edge correction.

Communication Name	enEdgeCorr
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN enEdgeCorr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enEdgeCorr	String	10	Switching the edge correction on and off

Read Variable Response:				
sRA enEdgeCorr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enEdgeCorr	String	10	Switching the edge correction on and off
Variable Data	data	Bool	1	

Write Variable:				
sWN enEdgeCorr <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enEdgeCorr	String	10	Switching the edge correction on and off
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enEdgeCorr				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enEdgeCorr	String	10	Switching the edge correction on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 45 64 67 65 43 6F 72 72 20	[...]* RN enEdgeCorr
Read Variable Response:	[...]* 52 41 20 65 6E 45 64 67 65 43 6F 72 72 20 00	[...]* RA enEdgeCorr .
Write Variable:	[...]* 57 4E 20 65 6E 45 64 67 65 43 6F 72 72 20 00	[...]* WN enEdgeCorr .
Write Variable Response:	[...]* 57 41 20 65 6E 45 64 67 65 43 6F 72 72 20	[...]* WA enEdgeCorr

4.3.2.13. Variable: lowerEdgeCorrectionThreshold

The following section contains a detailed description of the variable lowerEdgeCorrectionThreshold.

Variable Overview

Variable Name	Description
lowerEdgeCorrectionThreshold	The lower edge correction threshold. It is recommended to stay with the default value unless explicitly proposed by SICK support.

Communication Name	lowerEdgeCorrThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

LReal	
Value Range	See specification IEEE 754 0.0..256.0
Initialisation	0.25



Variable Telegram Syntax

Read Variable:				
sRN lowerEdgeCorrThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	lowerEdgeCorrThresh	String	19	The lower edge correction threshold.

Read Variable Response:				
sRA lowerEdgeCorrThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	lowerEdgeCorrThresh	String	19	The lower edge correction threshold.
Variable Data	data	LReal	8	

Write Variable:				
sWN lowerEdgeCorrThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	lowerEdgeCorrThresh	String	19	The lower edge correction threshold.
Variable Data	data	LReal	8	

Write Variable Response:				
sWA lowerEdgeCorrThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	lowerEdgeCorrThresh	String	19	The lower edge correction threshold.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6C 6F 77 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20	[...]* RN lowerEdgeCorr Thresh
Read Variable Response:	[...]* 52 41 20 6C 6F 77 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20 3F D0 00 00 00 00 00 00	[...]* RA lowerEdgeCorr Thresh ?.....
Write Variable:	[...]* 57 4E 20 6C 6F 77 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20 3F D0 00 00 00 00 00 00	[...]* WN lowerEdgeCorr Thresh ?.....
Write Variable Response:	[...]* 57 41 20 6C 6F 77 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20	[...]* WA lowerEdgeCorr Thresh



4.3.2.14. Variable: upperEdgeCorrectionThreshold

The following section contains a detailed description of the variable upperEdgeCorrectionThreshold.

Variable Overview

Variable Name	Description
upperEdgeCorrectionThreshold	The upper edge correction threshold. It is recommended to stay with the default value unless explicitly proposed by SICK support.

Communication Name	upperEdgeCorrThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

LReal	
Value Range	See specification IEEE 754 0.0..65535.0
Initialisation	125.0

Variable Telegram Syntax

Read Variable:				
sRN upperEdgeCorrThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	upperEdgeCorrThresh	String	19	The upper edge correction threshold.

Read Variable Response:				
sRA upperEdgeCorrThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	upperEdgeCorrThresh	String	19	The upper edge correction threshold.
Variable Data	data	LReal	8	

Write Variable:				
sWN upperEdgeCorrThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	upperEdgeCorrThresh	String	19	The upper edge correction threshold.
Variable Data	data	LReal	8	

Write Variable Response:				
sWA upperEdgeCorrThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	upperEdgeCorrThresh	String	19	The upper edge correction threshold.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 75 70 70 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20	[...]* RN upperEdgeCorr Thresh
Read Variable Response:	[...]* 52 41 20 75 70 70 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20 40 5F 40 00 00 00 00 00	[...]* RA upperEdgeCorr Thresh @_@.....
Write Variable:	[...]* 57 4E 20 75 70 70 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20 40 5F 40 00 00 00 00 00	[...]* WN upperEdgeCorr Thresh @_@.....
Write Variable Response:	[...]* 57 41 20 75 70 70 65 72 45 64 67 65 43 6F 72 72 54 68 72 65 73 68 20	[...]* WA upperEdgeCorr Thresh

4.3.3. Filter Settings

4.3.3.1. Variable: enDepthMask

The following section contains a detailed description of the variable enDepthMask.

Variable Overview

Variable Name	Description
enDepthMask	Enables masking of filtered, i.e. invalid pixels on the depth map. Alternatively, pixels affected by filtering can be identified via the respective state map.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	True

Variable Telegram Syntax

Read Variable:				
sRN enDepthMask				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enDepthMask	String	11	Enables Masking of Invalid Pixels on Depthmap.

Read Variable Response:				
sRA enDepthMask <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enDepthMask	String	11	Enables Masking of Invalid Pixels on Depthmap.
Variable Data	data	Bool	1	

Write Variable:				
sWN enDepthMask <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enDepthMask	String	11	Enables Masking of Invalid Pixels on Depthmap.
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enDepthMask				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enDepthMask	String	11	Enables Masking of Invalid Pixels on Depthmap.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 44 65 70 74 68 4D 61 73 6B 20	[...]* RN enDepthMask
Read Variable Response:	[...]* 52 41 20 65 6E 44 65 70 74 68 4D 61 73 6B 20 01	[...]* RA enDepthMask .
Write Variable:	[...]* 57 4E 20 65 6E 44 65 70 74 68 4D 61 73 6B 20 01	[...]* WN enDepthMask .
Write Variable Response:	[...]* 57 41 20 65 6E 44 65 70 74 68 4D 61 73 6B 20	[...]* WA enDepthMask

4.3.3.2. Variable: enableDistanceFilter

The following section contains a detailed description of the variable enableDistanceFilter.

Variable Overview

Variable Name	Description
enableDistanceFilter	Switching the distance based filtering on and off

Communication Name	enDistFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	True

Variable Telegram Syntax

Read Variable:				
sRN enDistFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enDistFilter	String	12	Switching the distance based filtering on and off

Read Variable Response:				
sRA enDistFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enDistFilter	String	12	Switching the distance based filtering on and off
Variable Data	data	Bool	1	

Write Variable:				
sWN enDistFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enDistFilter	String	12	Switching the distance based filtering on and off
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enDistFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enDistFilter	String	12	Switching the distance based filtering on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 44 69 73 74 46 69 6C 74 65 72 20	[...]* RN enDistFilter
Read Variable Response:	[...]* 52 41 20 65 6E 44 69 73 74 46 69 6C 74 65 72 20 01	[...]* RA enDistFilter .
Write Variable:	[...]* 57 4E 20 65 6E 44 69 73 74 46 69 6C 74 65 72 20 01	[...]* WN enDistFilter .
Write Variable Response:	[...]* 57 41 20 65 6E 44 69 73 74 46 69 6C 74 65 72 20	[...]* WA enDistFilter

4.3.3.3. Variable: minDistanceThreshold

The following section contains a detailed description of the variable minDistanceThreshold.

Variable Overview

Variable Name	Description
minDistanceThreshold	The minimal distance threshold. All values below are set to zero if the distance based filter is active.

Communication Name	minDistThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..16383
Initialisation	100
Physical Unit	mm



Variable Telegram Syntax

Read Variable:				
sRN minDistThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	minDistThresh	String	13	The minimal distance threshold. All values below are set to zero if the distance based filter is active.

Read Variable Response:				
sRA minDistThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	minDistThresh	String	13	The minimal distance threshold. All values below are set to zero if the distance based filter is active.
Variable Data	data	UInt	2	

Write Variable:				
sWN minDistThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	minDistThresh	String	13	The minimal distance threshold. All values below are set to zero if the distance based filter is active.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA minDistThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	minDistThresh	String	13	The minimal distance threshold. All values below are set to zero if the distance based filter is active.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6D 69 6E 44 69 73 74 54 68 72 65 73 68 20	[...]* RN minDistThresh
Read Variable Response:	[...]* 52 41 20 6D 69 6E 44 69 73 74 54 68 72 65 73 68 20 00 64	[...]* RA minDistThresh .d
Write Variable:	[...]* 57 4E 20 6D 69 6E 44 69 73 74 54 68 72 65 73 68 20 00 64	[...]* WN minDistThresh .d
Write Variable Response:	[...]* 57 41 20 6D 69 6E 44 69 73 74 54 68 72 65 73 68 20	[...]* WA minDistThresh

4.3.3.4. Variable: maxDistanceThreshold

The following section contains a detailed description of the variable maxDistanceThreshold.

Variable Overview

Variable Name	Description
maxDistanceThreshold	The maximal distance threshold. All values above are set to zero if the distance based filter is active.

Communication Name	maxDistThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..16383
Initialisation	9000
Physical Unit	mm

Variable Telegram Syntax

Read Variable:				
sRN maxDistThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	maxDistThresh	String	13	The maximal distance threshold. All values above are set to zero if the distance based filter is active.

Read Variable Response:				
sRA maxDistThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	maxDistThresh	String	13	The maximal distance threshold. All values above are set to zero if the distance based filter is active.
Variable Data	data	UInt	2	

Write Variable:				
sWN maxDistThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	maxDistThresh	String	13	The maximal distance threshold. All values above are set to zero if the distance based filter is active.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA maxDistThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	maxDistThresh	String	13	The maximal distance threshold. All values above are set to zero if the distance based filter is active.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6D 61 78 44 69 73 74 54 68 72 65 73 68 20	[...]* RN maxDistThresh
Read Variable Response:	[...]* 52 41 20 6D 61 78 44 69 73 74 54 68 72 65 73 68 20 23 28	[...]* RA maxDistThresh #(
Write Variable:	[...]* 57 4E 20 6D 61 78 44 69 73 74 54 68 72 65 73 68 20 23 28	[...]* WN maxDistThresh #(
Write Variable Response:	[...]* 57 41 20 6D 61 78 44 69 73 74 54 68 72 65 73 68 20	[...]* WA maxDistThresh

4.3.3.5. Variable: enableIntensityFilter

The following section contains a detailed description of the variable enableIntensityFilter.

Variable Overview

Variable Name	Description
enableIntensityFilter	Enable intensity based filter - Distance values for pixels outside the specified intensity range will be set to zero.

Communication Name	enIntFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	True

Variable Telegram Syntax

Read Variable:				
sRN enIntFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enIntFilter	String	11	Switching the Intensitybased filtering on and off

Read Variable Response:				
sRA enIntFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enIntFilter	String	11	Switching the Intensitybased filtering on and off
Variable Data	data	Bool	1	



Write Variable:				
sWN enIntFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enIntFilter	String	11	Switching the Intensitybased filtering on and off
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enIntFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enIntFilter	String	11	Switching the Intensitybased filtering on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 49 6E 74 46 69 6C 74 65 72 20	[...]* RN enIntFilter
Read Variable Response:	[...]* 52 41 20 65 6E 49 6E 74 46 69 6C 74 65 72 20 01	[...]* RA enIntFilter .
Write Variable:	[...]* 57 4E 20 65 6E 49 6E 74 46 69 6C 74 65 72 20 01	[...]* WN enIntFilter .
Write Variable Response:	[...]* 57 41 20 65 6E 49 6E 74 46 69 6C 74 65 72 20	[...]* WA enIntFilter

4.3.3.6. Variable: minIntensityThreshold

The following section contains a detailed description of the variable minIntensityThreshold.

Variable Overview

Variable Name	Description
minIntensityThreshold	The minimum intensity threshold. Distance values for all pixels below this intensity are set to zero if the the intensity based filter is active.

Communication Name	minIntThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..20000
Initialisation	5



Variable Telegram Syntax

Read Variable:				
sRN minIntThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	minIntThresh	String	12	The minimal Intensity threshold. If the Intensity value of a pixel is below, the corresponding pixel in the distance map is set to zero, if the Intensity based filter is active.

Read Variable Response:				
sRA minIntThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	minIntThresh	String	12	The minimal Intensity threshold. If the Intensity value of a pixel is below, the corresponding pixel in the distance map is set to zero, if the Intensity based filter is active.
Variable Data	data	UInt	2	

Write Variable:				
sWN minIntThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	minIntThresh	String	12	The minimal Intensity threshold. If the Intensity value of a pixel is below, the corresponding pixel in the distance map is set to zero, if the Intensity based filter is active.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA minIntThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	minIntThresh	String	12	The minimal Intensity threshold. If the Intensity value of a pixel is below, the corresponding pixel in the distance map is set to zero, if the Intensity based filter is active.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6D 69 6E 49 6E 74 54 68 72 65 73 68 20	[...]* RN minIntThresh
Read Variable Response:	[...]* 52 41 20 6D 69 6E 49 6E 74 54 68 72 65 73 68 20 00 05	[...]* RA minIntThresh ..
Write Variable:	[...]* 57 4E 20 6D 69 6E 49 6E 74 54 68 72 65 73 68 20 00 05	[...]* WN minIntThresh ..
Write Variable Response:	[...]* 57 41 20 6D 69 6E 49 6E 74 54 68 72 65 73 68 20	[...]* WA minIntThresh



4.3.3.7. Variable: maxIntensityThreshold

The following section contains a detailed description of the variable maxIntensityThreshold.

Variable Overview

Variable Name	Description
maxIntensityThreshold	The maximum intensity threshold. Distance values for all pixels above this intensity are set to zero if the the intensity based filter is active.

Communication Name	maxIntThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..20000
Initialisation	20000

Variable Telegram Syntax

Read Variable:				
sRN maxIntThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	maxIntThresh	String	12	The maximal intensity threshold. If the intensity value of a pixel is above the corresponding pixel in the distance map is set to zero, if the intensity based filter is active.

Read Variable Response:				
sRA maxIntThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	maxIntThresh	String	12	The maximal intensity threshold. If the intensity value of a pixel is above the corresponding pixel in the distance map is set to zero, if the intensity based filter is active.
Variable Data	data	UInt	2	

Write Variable:				
sWN maxIntThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	maxIntThresh	String	12	The maximal intensity threshold. If the intensity value of a pixel is above the corresponding pixel in the distance map is set to zero, if the intensity based filter is active.
Variable Data	data	UInt	2	



Write Variable Response:				
sWA maxIntThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	maxIntThresh	String	12	The maximal intensity threshold. If the intensity value of a pixel is above the corresponding pixel in the distance map is set to zero, if the intensity based filter is active.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6D 61 78 49 6E 74 54 68 72 65 73 68 20	[...]* RN maxIntThresh
Read Variable Response:	[...]* 52 41 20 6D 61 78 49 6E 74 54 68 72 65 73 68 20 4E 20	[...]* RA maxIntThresh N
Write Variable:	[...]* 57 4E 20 6D 61 78 49 6E 74 54 68 72 65 73 68 20 4E 20	[...]* WN maxIntThresh N
Write Variable Response:	[...]* 57 41 20 6D 61 78 49 6E 74 54 68 72 65 73 68 20	[...]* WA maxIntThresh

4.3.3.8. Variable: enableIsolatedPixelFilter

The following section contains a detailed description of the variable enableIsolatedPixelFilter.

Variable Overview

Variable Name	Description
enableIsolatedPixelFilter	Enable isolated pixel filter - This filter identifies single distance outlier pixels within a scene.

Communication Name	enIsoPixFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False



Variable Telegram Syntax

Read Variable:				
sRN enIsoPixFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enIsoPixFilter	String	14	Switching the isolated pixel filter on and off

Read Variable Response:				
sRA enIsoPixFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enIsoPixFilter	String	14	Switching the isolated pixel filter on and off
Variable Data	data	Bool	1	

Write Variable:				
sWN enIsoPixFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enIsoPixFilter	String	14	Switching the isolated pixel filter on and off
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enIsoPixFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enIsoPixFilter	String	14	Switching the isolated pixel filter on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 49 73 6F 50 69 78 46 69 6C 74 65 72 20	[...]* RN enIsoPixFilter
Read Variable Response:	[...]* 52 41 20 65 6E 49 73 6F 50 69 78 46 69 6C 74 65 72 20 00	[...]* RA enIsoPixFilter
Write Variable:	[...]* 57 4E 20 65 6E 49 73 6F 50 69 78 46 69 6C 74 65 72 20 00	[...]* WN enIsoPixFilter
Write Variable Response:	[...]* 57 41 20 65 6E 49 73 6F 50 69 78 46 69 6C 74 65 72 20	[...]* WA enIsoPixFilter

4.3.3.9. Variable: isolatedPixelDistanceThres

The following section contains a detailed description of the variable isolatedPixelDistanceThres.

Variable Overview

Variable Name	Description
isolatedPixelDistanceThres	Disance threshold used to define isolated pixel. Reducing the threshold increases the sensitivity.

Communication Name	isoPixelDistThres
Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	0..10000
Initialisation	300

Variable Telegram Syntax

Read Variable:				
sRN isoPixelDistThres				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	isoPixelDistThres	String	17	The difference threshold between opened and closed map of isolated pixel filter.

Read Variable Response:				
sRA isoPixelDistThres <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	isoPixelDistThres	String	17	The difference threshold between opened and closed map of isolated pixel filter.
Variable Data	data	UInt	2	

Write Variable:				
sWN isoPixelDistThres <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	isoPixelDistThres	String	17	The difference threshold between opened and closed map of isolated pixel filter.
Variable Data	data	UInt	2	

Write Variable Response:				
sWA isoPixelDistThres				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	isoPixelDistThres	String	17	The difference threshold between opened and closed map of isolated pixel filter.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 69 73 6F 50 69 78 65 6C 44 69 73 74 54 68 72 65 73 20	[...]* RN isoPixelDistT hres
Read Variable Response:	[...]* 52 41 20 69 73 6F 50 69 78 65 6C 44 69 73 74 54 68 72 65 73 20 01 2C	[...]* RA isoPixelDistT hres ,
Write Variable:	[...]* 57 4E 20 69 73 6F 50 69 78 65 6C 44 69 73 74 54 68 72 65 73 20 01 2C	[...]* WN isoPixelDistT hres ,
Write Variable Response:	[...]* 57 41 20 69 73 6F 50 69 78 65 6C 44 69 73 74 54 68 72 65 73 20	[...]* WA isoPixelDistT hres

4.3.3.10. Variable: enableAmbiguityFilter

The following section contains a detailed description of the variable enableAmbiguityFilter.

Variable Overview

Variable Name	Description
enableAmbiguityFilter	Enables/disables the ambiguity based filter.

Communication Name	enAmbFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN enAmbFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enAmbFilter	String	11	Switching the ambiguity filter on and off

Read Variable Response:				
sRA enAmbFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enAmbFilter	String	11	Switching the ambiguity filter on and off
Variable Data	data	Bool	1	

Write Variable:				
sWN enAmbFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enAmbFilter	String	11	Switching the ambiguity filter on and off
Variable Data	data	Bool	1	

Write Variable Response:				
sWA enAmbFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enAmbFilter	String	11	Switching the ambiguity filter on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 41 6D 62 46 69 6C 74 65 72 20	[...]* RN enAmbFilter
Read Variable Response:	[...]* 52 41 20 65 6E 41 6D 62 46 69 6C 74 65 72 20 00	[...]* RA enAmbFilter .
Write Variable:	[...]* 57 4E 20 65 6E 41 6D 62 46 69 6C 74 65 72 20 00	[...]* WN enAmbFilter .
Write Variable Response:	[...]* 57 41 20 65 6E 41 6D 62 46 69 6C 74 65 72 20	[...]* WA enAmbFilter

4.3.3.11. Variable: scaleAmbiguityFilter

The following section contains a detailed description of the variable scaleAmbiguityFilter.

Variable Overview

Variable Name	Description
scaleAmbiguityFilter	Set the strength of the ambiguity based filter.

Communication Name	scaleAmbFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

LReal	
Value Range	See specification IEEE 754 0.0..1.0
Initialisation	0.55



Variable Telegram Syntax

Read Variable:				
sRN scaleAmbFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	scaleAmbFilter	String	14	Ambiguity difference scaling factor

Read Variable Response:				
sRA scaleAmbFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	scaleAmbFilter	String	14	Ambiguity difference scaling factor
Variable Data	data	LReal	8	

Write Variable:				
sWN scaleAmbFilter <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	scaleAmbFilter	String	14	Ambiguity difference scaling factor
Variable Data	data	LReal	8	

Write Variable Response:				
sWA scaleAmbFilter				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	scaleAmbFilter	String	14	Ambiguity difference scaling factor

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 73 63 61 6C 65 41 6D 62 46 69 6C 74 65 72 20	[...]* RN scaleAmbFilter
Read Variable Response:	[...]* 52 41 20 73 63 61 6C 65 41 6D 62 46 69 6C 74 65 72 20 3F E1 99 99 99 99 99 9A	[...]* RA scaleAmbFilter ?
Write Variable:	[...]* 57 4E 20 73 63 61 6C 65 41 6D 62 46 69 6C 74 65 72 20 3F E1 99 99 99 99 99 9A	[...]* WN scaleAmbFilter ?
Write Variable Response:	[...]* 57 41 20 73 63 61 6C 65 41 6D 62 46 69 6C 74 65 72 20	[...]* WA scaleAmbFilter

4.3.3.12. Variable: enableRemissionFilter

The following section contains a detailed description of the variable enableRemissionFilter.

Variable Overview

Variable Name	Description
enableRemissionFilter	Enables/disables the remission based filter.

Communication Name	enRemFilter
Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:	
sRN enRemFilter	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	enRemFilter	String	11	Switching the remission filter on and off

Read Variable Response:	
sRA enRemFilter <data>	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	enRemFilter	String	11	Switching the remission filter on and off
Variable Data	data	Bool	1	

Write Variable:	
sWN enRemFilter <data>	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	enRemFilter	String	11	Switching the remission filter on and off
Variable Data	data	Bool	1	

Write Variable Response:	
sWA enRemFilter	

Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	enRemFilter	String	11	Switching the remission filter on and off

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 65 6E 52 65 6D 46 69 6C 74 65 72 20	[...]* RN enRemFilter
Read Variable Response:	[...]* 52 41 20 65 6E 52 65 6D 46 69 6C 74 65 72 20 00	[...]* RA enRemFilter .
Write Variable:	[...]* 57 4E 20 65 6E 52 65 6D 46 69 6C 74 65 72 20 00	[...]* WN enRemFilter .
Write Variable Response:	[...]* 57 41 20 65 6E 52 65 6D 46 69 6C 74 65 72 20	[...]* WA enRemFilter

4.3.3.13. Variable: lowerRemissionFilterThreshold

The following section contains a detailed description of the variable lowerRemissionFilterThreshold.

Variable Overview

Variable Name	Description
lowerRemissionFilterThreshold	Lower threshold for the remission based filter. Pixels with a lower value will be set to zero.

Communication Name	lowerRemFilterThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

LReal	
Value Range	See specification IEEE 754 0.0..10000.0
Initialisation	0.1

Variable Telegram Syntax

Read Variable:				
sRN lowerRemFilterThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	lowerRemFilterThresh	String	20	The lower remission filter threshold.

Read Variable Response:				
sRA lowerRemFilterThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	lowerRemFilterThresh	String	20	The lower remission filter threshold.
Variable Data	data	LReal	8	

Write Variable:				
sWN lowerRemFilterThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	lowerRemFilterThresh	String	20	The lower remission filter threshold.
Variable Data	data	LReal	8	

Write Variable Response:				
sWA lowerRemFilterThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	lowerRemFilterThresh	String	20	The lower remission filter threshold.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6C 6F 77 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20	[...]* RN lowerRemFilte rThresh
Read Variable Response:	[...]* 52 41 20 6C 6F 77 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20 3F B9 99 99 99 99 9A	[...]* RA lowerRemFilte rThresh ?
Write Variable:	[...]* 57 4E 20 6C 6F 77 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20 3F B9 99 99 99 99 9A	[...]* WN lowerRemFilte rThresh ?
Write Variable Response:	[...]* 57 41 20 6C 6F 77 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20	[...]* WA lowerRemFilte rThresh

4.3.3.14. Variable: upperRemissionFilterThreshold

The following section contains a detailed description of the variable upperRemissionFilterThreshold.

Variable Overview

Variable Name	Description
upperRemissionFilterThreshold	Upper threshold for the remission based filter. Pixels with a higher value will be set to zero.

Communication Name	upperRemFilterThresh
Read-Access	Always
Write-Access	AuthorizedClient, Service

LReal	
Value Range	See specification IEEE 754 0.0..10000.0
Initialisation	1.0



Variable Telegram Syntax

Read Variable:				
sRN upperRemFilterThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	upperRemFilterThresh	String	20	The upper remission filter threshold.

Read Variable Response:				
sRA upperRemFilterThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	upperRemFilterThresh	String	20	The upper remission filter threshold.
Variable Data	data	LReal	8	

Write Variable:				
sWN upperRemFilterThresh <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	upperRemFilterThresh	String	20	The upper remission filter threshold.
Variable Data	data	LReal	8	

Write Variable Response:				
sWA upperRemFilterThresh				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	upperRemFilterThresh	String	20	The upper remission filter threshold.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 75 70 70 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20	[...]* RN upperRemFilte rThresh
Read Variable Response:	[...]* 52 41 20 75 70 70 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20 3F F0 00 00 00 00 00	[...]* RA upperRemFilte rThresh ?.....
Write Variable:	[...]* 57 4E 20 75 70 70 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20 3F F0 00 00 00 00 00	[...]* WN upperRemFilte rThresh ?.....
Write Variable Response:	[...]* 57 41 20 75 70 70 65 72 52 65 6D 46 69 6C 74 65 72 54 68 72 65 73 68 20	[...]* WA upperRemFilte rThresh

4.3.4. Time synchronisation

4.3.4.1. Variable: timeSynchronizationEnabled

The following section contains a detailed description of the variable timeSynchronizationEnabled.

Variable Overview

Variable Name	Description
timeSynchronizationEnabled	Enables time sync feature to synchronize multiple devices. Needs a running PTP/NTP Client to work.

Read-Access	Always
Write-Access	AuthorizedClient, Service

Bool	
Value Range	False, True
Initialisation	False

Variable Telegram Syntax

Read Variable:				
sRN timeSynchronizationEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	timeSynchronizationEnabled	String	26	Enables time sync feature to synchronize multiple devices. Needs a running PTP/NTP Client to work.

Read Variable Response:				
sRA timeSynchronizationEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	timeSynchronizationEnabled	String	26	Enables time sync feature to synchronize multiple devices. Needs a running PTP/NTP Client to work.
Variable Data	data	Bool	1	

Write Variable:				
sWN timeSynchronizationEnabled <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	timeSynchronizationEnabled	String	26	Enables time sync feature to synchronize multiple devices. Needs a running PTP/NTP Client to work.
Variable Data	data	Bool	1	

Write Variable Response:				
sWA timeSynchronizationEnabled				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	timeSynchronizationEnabled	String	26	Enables time sync feature to synchronize multiple devices. Needs a running PTP/NTP Client to work.



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 45 6E 61 62 6C 65 64 20	[...]* RN timeSynchroni zationEnabled
Read Variable Response:	[...]* 52 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 45 6E 61 62 6C 65 64 20 00	[...]* RA timeSynchroni zationEnabled .
Write Variable:	[...]* 57 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 45 6E 61 62 6C 65 64 20 00	[...]* WN timeSynchroni zationEnabled .
Write Variable Response:	[...]* 57 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 45 6E 61 62 6C 65 64 20	[...]* WA timeSynchroni zationEnabled

4.3.4.2. Variable: timeSynchronizationOffset

The following section contains a detailed description of the variable timeSynchronizationOffset.

Variable Overview

Variable Name	Description
timeSynchronizationOffset	Trigger offset. Used to shift the trigger which allows non overlapping acquisition of several devices.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UDInt	
Value Range	0..1000000
Initialisation	0
Physical Unit	µs

Variable Telegram Syntax

Read Variable:				
sRN timeSynchronizationOffset				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	timeSynchronizationOffset	String	25	Trigger offset. Used to shift the trigger which allows non overlapping acquisition of several devices.

Read Variable Response:				
sRA timeSynchronizationOffset <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	timeSynchronizationOffset	String	25	Trigger offset. Used to shift the trigger which allows non overlapping acquisition of several devices.
Variable Data	data	UDInt	4	



Write Variable:				
sWN timeSynchronizationOffset <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	timeSynchronizationOffset	String	25	Trigger offset. Used to shift the trigger which allows non overlapping acquisition of several devices.
Variable Data	data	UDInt	4	

Write Variable Response:				
sWA timeSynchronizationOffset				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	timeSynchronizationOffset	String	25	Trigger offset. Used to shift the trigger which allows non overlapping acquisition of several devices.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 4F 66 66 73 65 74 20	[...]* RN timeSynchroni zationOffset
Read Variable Response:	[...]* 52 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 4F 66 66 73 65 74 20 00 00 00 00	[...]* RA timeSynchroni zationOffset
Write Variable:	[...]* 57 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 4F 66 66 73 65 74 20 00 00 00 00	[...]* WN timeSynchroni zationOffset
Write Variable Response:	[...]* 57 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 4F 66 66 73 65 74 20	[...]* WA timeSynchroni zationOffset

4.3.4.3. Variable: timeSynchronizationFPS

The following section contains a detailed description of the variable timeSynchronizationFPS.

Variable Overview

Variable Name	Description
timeSynchronizationFPS	Target frame rate for the camera when time synchronized image acquisition is used.

Read-Access	Always
Write-Access	AuthorizedClient, Service

USInt	
Value Range	1..30
Initialisation	30
Physical Unit	µs



Variable Telegram Syntax

Read Variable:				
sRN timeSynchronizationFPS				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	timeSynchronizationFPS	String	22	Target FPS at which the frontend should be running when time Synchronization is activated.

Read Variable Response:				
sRA timeSynchronizationFPS <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	timeSynchronizationFPS	String	22	Target FPS at which the frontend should be running when time Synchronization is activated.
Variable Data	data	USInt	1	

Write Variable:				
sWN timeSynchronizationFPS <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	timeSynchronizationFPS	String	22	Target FPS at which the frontend should be running when time Synchronization is activated.
Variable Data	data	USInt	1	

Write Variable Response:				
sWA timeSynchronizationFPS				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	timeSynchronizationFPS	String	22	Target FPS at which the frontend should be running when time Synchronization is activated.

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 46 50 53 20	[...]* RN timeSynchroni zationFPS
Read Variable Response:	[...]* 52 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 46 50 53 20 1E	[...]* RA timeSynchroni zationFPS .
Write Variable:	[...]* 57 4E 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 46 50 53 20 1E	[...]* WN timeSynchroni zationFPS .
Write Variable Response:	[...]* 57 41 20 74 69 6D 65 53 79 6E 63 68 72 6F 6E 69 7A 61 74 69 6F 6E 46 50 53 20	[...]* WA timeSynchroni zationFPS

4.3.4.4. Variable: timeSyncMode

The following section contains a detailed description of the variable timeSyncMode.

Variable Overview

Variable Name	Description
timeSyncMode	Mode of the time synchronization (none, NTP, PTP).

Read-Access	Always
Write-Access	AuthorizedClient, Service

Enum8			
Default Value		NONE	
Value	Name	Description	
0	NONE	Disable timesync	
1	NTP	Use NTP Client	
2	PTP	Use PTP	

Variable Telegram Syntax

Read Variable:				
sRN timeSyncMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	timeSyncMode	String	12	

Read Variable Response:				
sRA timeSyncMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	timeSyncMode	String	12	
Variable Data	data	Enum8	1	

Write Variable:				
sWN timeSyncMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	timeSyncMode	String	12	
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA timeSyncMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	timeSyncMode	String	12	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 74 69 6D 65 53 79 6E 63 4D 6F 64 65 20	[...]* RN timeSyncMode
Read Variable Response:	[...]* 52 41 20 74 69 6D 65 53 79 6E 63 4D 6F 64 65 20 00	[...]* RA timeSyncMode .
Write Variable:	[...]* 57 4E 20 74 69 6D 65 53 79 6E 63 4D 6F 64 65 20 00	[...]* WN timeSyncMode .
Write Variable Response:	[...]* 57 41 20 74 69 6D 65 53 79 6E 63 4D 6F 64 65 20	[...]* WA timeSyncMode

4.3.4.5. NTP Client

4.3.4.5.1. Variable: ntpClientServerAddress

The following section contains a detailed description of the variable ntpClientServerAddress.

Variable Overview

Variable Name	Description
ntpClientServerAddress	Server address of the NTP client.

Read-Access	Always
Write-Access	AuthorizedClient, Service

FlexString	
Length	0..255

Variable Telegram Syntax

Read Variable:				
sRN ntpClientServerAddress				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ntpClientServerAddress	String	22	

Read Variable Response:				
sRA ntpClientServerAddress <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ntpClientServerAddress	String	22	
Variable Data	data	FlexString	255	

Write Variable:				
sWN ntpClientServerAddress <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	ntpClientServerAddress	String	22	
Variable Data	data	FlexString	255	

Write Variable Response:				
sWA ntpClientServerAddress				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	ntpClientServerAddress	String	22	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 41 64 64 72 65 73 73 20	[...]* RN ntpClientServ erAddress
Read Variable Response:	[...]* 52 41 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 41 64 64 72 65 73 73 20 00 00	[...]* RA ntpClientServ erAddress ..
Write Variable:	[...]* 57 4E 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 41 64 64 72 65 73 73 20 00 00	[...]* WN ntpClientServ erAddress ..
Write Variable Response:	[...]* 57 41 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 41 64 64 72 65 73 73 20	[...]* WA ntpClientServ erAddress

4.3.4.5.2. Variable: ntpClientServerPort

The following section contains a detailed description of the variable ntpClientServerPort.

Variable Overview

Variable Name	Description
ntpClientServerPort	Port of the NTP client server.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UInt	
Value Range	1..65535
Initialisation	123

Variable Telegram Syntax

Read Variable:				
sRN ntpClientServerPort				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ntpClientServerPort	String	19	

Read Variable Response:				
sRA ntpClientServerPort <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ntpClientServerPort	String	19	
Variable Data	data	UInt	2	



Write Variable:				
sWN ntpClientServerPort <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	ntpClientServerPort	String	19	
Variable Data	data	UInt	2	

Write Variable Response:				
sWA ntpClientServerPort				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	ntpClientServerPort	String	19	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 50 6F 72 74 20	[...]* RN ntpClientServ erPort
Read Variable Response:	[...]* 52 41 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 50 6F 72 74 20 00 7B	[...]* RA ntpClientServ erPort .{
Write Variable:	[...]* 57 4E 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 50 6F 72 74 20 00 7B	[...]* WN ntpClientServ erPort .{
Write Variable Response:	[...]* 57 41 20 6E 74 70 43 6C 69 65 6E 74 53 65 72 76 65 72 50 6F 72 74 20	[...]* WA ntpClientServ erPort

4.3.4.5.3. Variable: ntpClientTimeout

The following section contains a detailed description of the variable ntpClientTimeout.

Variable Overview

Variable Name	Description
ntpClientTimeout	Timeout of the NTP client in microseconds.

Read-Access	Always
Write-Access	AuthorizedClient, Service

UDInt	
Value Range	1..65535
Initialisation	10000



Variable Telegram Syntax

Read Variable:				
sRN ntpClientTimeout				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ntpClientTimeout	String	16	

Read Variable Response:				
sRA ntpClientTimeout <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ntpClientTimeout	String	16	
Variable Data	data	UDInt	4	

Write Variable:				
sWN ntpClientTimeout <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	ntpClientTimeout	String	16	
Variable Data	data	UDInt	4	

Write Variable Response:				
sWA ntpClientTimeout				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	ntpClientTimeout	String	16	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 6E 74 70 43 6C 69 65 6E 74 54 69 6D 65 6F 75 74 20	[...]* RN ntpClientTime out
Read Variable Response:	[...]* 52 41 20 6E 74 70 43 6C 69 65 6E 74 54 69 6D 65 6F 75 74 20 00 00 27 10	[...]* RA ntpClientTime out ...'
Write Variable:	[...]* 57 4E 20 6E 74 70 43 6C 69 65 6E 74 54 69 6D 65 6F 75 74 20 00 00 27 10	[...]* WN ntpClientTime out ...'
Write Variable Response:	[...]* 57 41 20 6E 74 70 43 6C 69 65 6E 74 54 69 6D 65 6F 75 74 20	[...]* WA ntpClientTime out

4.3.4.6. PTP

4.3.4.6.1. Variable: ptpMode

The following section contains a detailed description of the variable ptpMode.

Variable Overview

Variable Name
ptpMode

Read-Access	Always
Write-Access	AuthorizedClient, Service

Enum8			
Default Value		AUTO	
Value	Name	Description	
0	AUTO		
1	MASTER		
2	SLAVE		

Variable Telegram Syntax

Read Variable:				
sRN ptpMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	ptpMode	String	7	

Read Variable Response:				
sRA ptpMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	ptpMode	String	7	
Variable Data	data	Enum8	1	

Write Variable:				
sWN ptpMode <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	ptpMode	String	7	
Variable Data	data	Enum8	1	

Write Variable Response:				
sWA ptpMode				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	ptpMode	String	7	



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 70 74 70 4D 6F 64 65 20	[...]* RN ptpMode
Read Variable Response:	[...]* 52 41 20 70 74 70 4D 6F 64 65 20 00	[...]* RA ptpMode .
Write Variable:	[...]* 57 4E 20 70 74 70 4D 6F 64 65 20 00	[...]* WN ptpMode .
Write Variable Response:	[...]* 57 41 20 70 74 70 4D 6F 64 65 20	[...]* WA ptpMode

4.4. Digital IOs

4.4.1. Variable: IOValue

The following section contains a detailed description of the variable IOValue.

Variable Overview

Variable Name	Description
IOValue	This variable returns the logical state of all six I/Os which can either be 0 or 1.

Read-Access	Always
Write-Access	No! (readonly)

UserType	
V3SIOsState	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN IOValue				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	IOValue	String	7	All available IOs Values

Read Variable Response:				
sRA IOValue <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	IOValue	String	7	All available IOs Values
Variable Data	data	V3SIOsState	6	

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 49 4F 56 61 6C 75 65 20	[...]* RN IOValue
Read Variable Response:	[...]* 52 41 20 49 4F 56 61 6C 75 65 20 00 00 00 00 00 00	[...]* RA IOValue

4.4.2. Variable: INOUT1_Function

The following section contains a detailed description of the variable INOUT1_Function.

Variable Overview

Variable Name	Description
INOUT1_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO1Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN DIO1Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO1Fnc	String	7	Function of INOUT1

Read Variable Response:				
sRA DIO1Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO1Fnc	String	7	Function of INOUT1
Variable Data	data	IOFunctionType	0	

Write Variable:				
sWN DIO1Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO1Fnc	String	7	Function of INOUT1
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO1Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO1Fnc	String	7	Function of INOUT1



Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 31 46 6E 63 20	[...]* RN DIO1Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 31 46 6E 63 20 00	[...]* RA DIO1Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 31 46 6E 63 20 00	[...]* WN DIO1Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 31 46 6E 63 20	[...]* WA DIO1Fnc

4.4.3. Variable: INOUT2_Function

The following section contains a detailed description of the variable INOUT2_Function.

Variable Overview

Variable Name	Description
INOUT2_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO2Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN DIO2Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO2Fnc	String	7	Function of INOUT2

Read Variable Response:				
sRA DIO2Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO2Fnc	String	7	Function of INOUT2
Variable Data	data	IOFunctionType	0	



Write Variable:				
sWN DIO2Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO2Fnc	String	7	Function of INOUT2
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO2Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO2Fnc	String	7	Function of INOUT2

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 32 46 6E 63 20	[...]* RN DIO2Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 32 46 6E 63 20 00	[...]* RA DIO2Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 32 46 6E 63 20 00	[...]* WN DIO2Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 32 46 6E 63 20	[...]* WA DIO2Fnc

4.4.4. Variable: INOUT3_Function

The following section contains a detailed description of the variable INOUT3_Function.

Variable Overview

Variable Name	Description
INOUT3_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO3Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.



Variable Telegram Syntax

Read Variable:				
sRN DIO3Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO3Fnc	String	7	Function of INOUT3

Read Variable Response:				
sRA DIO3Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO3Fnc	String	7	Function of INOUT3
Variable Data	data	IOFunctionType	0	

Write Variable:				
sWN DIO3Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO3Fnc	String	7	Function of INOUT3
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO3Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO3Fnc	String	7	Function of INOUT3

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 33 46 6E 63 20	[...]* RN DIO3Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 33 46 6E 63 20 00	[...]* RA DIO3Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 33 46 6E 63 20 00	[...]* WN DIO3Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 33 46 6E 63 20	[...]* WA DIO3Fnc

4.4.5. Variable: INOUT4_Function

The following section contains a detailed description of the variable INOUT4_Function.

Variable Overview

Variable Name	Description
INOUT4_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO4Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN DIO4Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO4Fnc	String	7	Function of INOUT4

Read Variable Response:				
sRA DIO4Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO4Fnc	String	7	Function of INOUT4
Variable Data	data	IOFunctionType	0	

Write Variable:				
sWN DIO4Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO4Fnc	String	7	Function of INOUT4
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO4Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO4Fnc	String	7	Function of INOUT4

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 34 46 6E 63 20	[...]* RN DIO4Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 34 46 6E 63 20 00	[...]* RA DIO4Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 34 46 6E 63 20 00	[...]* WN DIO4Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 34 46 6E 63 20	[...]* WA DIO4Fnc

4.4.6. Variable: INOUT5_Function

The following section contains a detailed description of the variable INOUT5_Function.

Variable Overview

Variable Name	Description
INOUT5_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO5Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.

Variable Telegram Syntax

Read Variable:				
sRN DIO5Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO5Fnc	String	7	Function of INOUT5

Read Variable Response:				
sRA DIO5Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO5Fnc	String	7	Function of INOUT5
Variable Data	data	IOFunctionType	0	



Write Variable:				
sWN DIO5Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO5Fnc	String	7	Function of INOUT5
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO5Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO5Fnc	String	7	Function of INOUT5

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 35 46 6E 63 20	[...]* RN DIO5Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 35 46 6E 63 20 00	[...]* RA DIO5Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 35 46 6E 63 20 00	[...]* WN DIO5Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 35 46 6E 63 20	[...]* WA DIO5Fnc

4.4.7. Variable: INOUT6_Function

The following section contains a detailed description of the variable INOUT6_Function.

Variable Overview

Variable Name	Description
INOUT6_Function	This variable maps one of the defined functions to the respective IO. Possible functions, i.e. enum items are: Unused (0) (Input), OFF (1) (Output), ON (2) (Output), TemperatureWarning (5) (Output), Trigger Process (23) (Output), Power-save mode (24) (Input), Trigger (7) (Input), Device Warning (30) (Output).

Communication Name	DIO6Fnc
Read-Access	Always
Write-Access	AuthorizedClient, Service

UserType	
IOFunctionType	See the chapter "User Types" for details.



Variable Telegram Syntax

Read Variable:				
sRN DIO6Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRN	String	3	Read SOPAS Variable by Name
Variable	DIO6Fnc	String	7	Function of INOUT6

Read Variable Response:				
sRA DIO6Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sRA	String	3	SOPAS Variable Read Acknowledge
Variable	DIO6Fnc	String	7	Function of INOUT6
Variable Data	data	IOFunctionType	0	

Write Variable:				
sWN DIO6Fnc <data>				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWN	String	3	Write SOPAS Variable by Name
Variable	DIO6Fnc	String	7	Function of INOUT6
Variable Data	data	IOFunctionType	0	

Write Variable Response:				
sWA DIO6Fnc				
Telegram Part	Telegram	Type	Length [Byte]	Description
Command	sWA	String	3	SOPAS Variable Write Acknowledge
Variable	DIO6Fnc	String	7	Function of INOUT6

Variable Telegram Examples

Example: Default Values		
Variable telegram examples with data set to default values.		
Read Variable:	[...]* 52 4E 20 44 49 4F 36 46 6E 63 20	[...]* RN DIO6Fnc
Read Variable Response:	[...]* 52 41 20 44 49 4F 36 46 6E 63 20 00	[...]* RA DIO6Fnc .
Write Variable:	[...]* 57 4E 20 44 49 4F 36 46 6E 63 20 00	[...]* WN DIO6Fnc .
Write Variable Response:	[...]* 57 41 20 44 49 4F 36 46 6E 63 20	[...]* WA DIO6Fnc

5. User Types

5.1. Type: CameraModel

The following section contains a detailed description of the user type CameraModel.

Type
CameraModel

Struct	
CameraID	Unique camera identifier
FlexString	
Length	0..64
ImageWidth	Image width for which the calibration is valid
DInt	
Value Range	-2147483648..2147483647
ImageHeight	Image height for which the calibration is valid
DInt	
Value Range	-2147483648..2147483647
FocalDistance	Distance from the camera to the plane of best image sharpness
LReal	
Value Range	See specification IEEE 754
FocalDistanceUnit	Focus distance unit (Default is mm)
FlexString	
Length	0..8
IntrinsicK	3x3 matrix with the intrinsic camera parameters: $K = [fx \ s \ cx, \ 0 \ fy \ cy, \ 0 \ 0 \ 1]$
UserType	
Matrix3x3d	See the chapter "User Types" for details.
WorldToSensorDistortion	5x1 matrix with the world to sensor lens distortion coefficients [k1, k2, p1, p2, k3]
UserType	
Matrix5x1d	See the chapter "User Types" for details.
SensorToWorldDistortion	5x1 matrix with the sensor to world lens distortion coefficients [k1, k2, p1, p2, k3]
UserType	
Matrix5x1d	See the chapter "User Types" for details.
Transform3D	Rigid transformation from camera reference point to sensor coordinates [R,t]
UserType	
Matrix4x4d	See the chapter "User Types" for details.

5.2. Type: CidVersion

The following section contains a detailed description of the user type CidVersion.

Type	
CidVersion	

Struct			
MajorVersion			
UInt			
Value Range		0..65535	
Initialisation		2	
MinorVersion			
UInt			
Value Range		0..65535	
Initialisation		1	
PatchVersion			
UInt			
Value Range		0..65535	
Initialisation		0	
BuildNumber			
UDInt			
Value Range		0..4294967295	
Initialisation		3341	
VersionClassifier			
Enum8			
Default Value		R	
	Value	Name	Description
	0	C	Release Candidate
	1	A	Alpha
	2	B	Beta
	3	R	Release
	4	S	Special



5.3. Type: ErrStructType

The following section contains a detailed description of the user type ErrStructType.

Type	Description
ErrStructType	TODO

Struct	
ErrorId	
UDInt	
Value Range	0..4294967295
ErrorState	
UDInt	
Value Range	0..4294967295
FirstTime	
UserType	
ErrTimeType	See the chapter "User Types" for details.
LastTime	
UserType	
ErrTimeType	See the chapter "User Types" for details.
NumberOccurance	
UInt	
Value Range	0..65535
Initialisation	0
ErrReserved	
UInt	
Value Range	0..65535
Initialisation	0
ExtInfo	
FlexString	
Length	0..50

5.4. Type: ErrTimeType

The following section contains a detailed description of the user type ErrTimeType.

Type	Description
ErrTimeType	TODO

Struct	
PwrOnCnt	
UInt	
Value Range	0..65535
Initialisation	0
OpSecs	
UDInt	
Value Range	0..4294967295
Initialisation	0
TimeOccur	
UDInt	
Value Range	0..4294967295
Initialisation	0

5.5. Type: IOFunctionType

The following section contains a detailed description of the user type IOFunctionType.

Type
IOFunctionType



Enum8		
Default Value	NoFunction	
Value	Name	Description
0	NoFunction	
1	SteadyLOW	
2	SteadyHIGH	
3	DeviceStatus	
4	DataQualityCheck	
5	TemperatureWarning	
6	DONTUSE_PollutionWarning	Planned to signal a possible pollution of the optics. Not yet used, but might be available in future.
7	Trigger	
8	DONTUSE_UserStart	Only needed to convert old data sets, don't use.
9	DONTUSE_User2	Only needed to convert old data sets, don't use.
10	DONTUSE_User3	Only needed to convert old data sets, don't use.
11	DONTUSE_User4	Only needed to convert old data sets, don't use.
12	DONTUSE_User5	Only needed to convert old data sets, don't use.
13	DONTUSE_User6	Only needed to convert old data sets, don't use.
14	DONTUSE_User7	Only needed to convert old data sets, don't use.
15	DONTUSE_User8	Only needed to convert old data sets, don't use.
16	DONTUSE_User9	Only needed to convert old data sets, don't use.
17	DONTUSE_User10	Only needed to convert old data sets, don't use.
18	DONTUSE_User11	Only needed to convert old data sets, don't use.
19	DONTUSE_User12	Only needed to convert old data sets, don't use.
20	DONTUSE_User13	Only needed to convert old data sets, don't use.
21	DONTUSE_User14	Only needed to convert old data sets, don't use.
22	DONTUSE_UserEnd	Only needed to convert old data sets, don't use.
23	TriggerBusy	
24	PowerSaveMode	
26	JobOutput	Outputs the group detection result of the DT application
27	TriggerTeach	Used to trigger Teach in DT application.
28	IlluminationTrigger	Used to trigger an external illumination.
30	DeviceWarning	Used to signal device warnings (in sync with yellow device LED).
31	TemperatureCritical	Used to signal a critical device temperature.

5.6. Type: Matrix3x3d

The following section contains a detailed description of the user type Matrix3x3d.

Type
Matrix3x3d

Struct	
Values	
Array	
Length	9
Default Value	{1.0,0.0,0.0,0.0,1.0,0.0,0.0,0.0,1.0}
LReal	
Value Range	See specification IEEE 754

5.7. Type: Matrix4x4

The following section contains a detailed description of the user type Matrix4x4.

Type	
Matrix4x4	

Struct	
Values	
Array	
Length	16
Default Value	{1.Of,0.Of,0.Of,0.Of,0.Of,1.Of,0.Of,0.Of,0.Of,0.Of,1.Of,0.Of,0.Of,0.Of,1.Of}
Real	
Value Range	See specification IEEE 754

5.8. Type: Matrix4x4d

The following section contains a detailed description of the user type Matrix4x4d.

Type	
Matrix4x4d	

Struct	
Values	
Array	
Length	16
Default Value	{1.0,0.0,0.0,0.0,0.0,1.0,0.0,0.0,0.0,0.0,1.0,0.0,0.0,0.0,1.0}
LReal	
Value Range	See specification IEEE 754

5.9. Type: Matrix5x1d

The following section contains a detailed description of the user type Matrix5x1d.

Type	Description
Matrix5x1d	Matrix of 5 columns and 1 row

Struct	
Values	
Array	
Length	5
Default Value	{0.0,0.0,0.0,0.0,0.0}
LReal	
Value Range	See specification IEEE 754

5.10. Type: RotationVector3f

The following section contains a detailed description of the user type RotationVector3f.

Type
RotationVector3f

Struct		
X	Real	
	Value Range	See specification IEEE 754
	Initialisation	0.0
	Physical Unit	deg
Y	Real	
	Value Range	See specification IEEE 754
	Initialisation	0.0
	Physical Unit	deg
Z	Real	
	Value Range	See specification IEEE 754
	Initialisation	0.0
	Physical Unit	deg

5.11. Type: ThreeLevels

The following section contains a detailed description of the user type ThreeLevels.

Type
ThreeLevels

Enum8		
Value	Name	Description
0	INVALID	Unspecified, uninitialized, unknown
1	ERROR	An error was detected
2	WARNING	Reliability is questionable
3	GOOD	Anything is like expected

5.12. Type: V3SIOsState

The following section contains a detailed description of the user type V3SIOsState.

Type
V3SIOsState

Struct	
INOUT1	
SInt	
Value Range	-128..127
INOUT2	
SInt	
Value Range	-128..127
INOUT3	
SInt	
Value Range	-128..127
INOUT4	
SInt	
Value Range	-128..127
INOUT5	
SInt	
Value Range	-128..127
INOUT6	
SInt	
Value Range	-128..127

5.13. Type: Vector3

The following section contains a detailed description of the user type Vector3.

Type
Vector3

Struct	
X	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	mm
Y	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	mm

Struct	
Z	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	mm

5.14. Type: V3SElectricalMonitoring

The following section contains a detailed description of the user type V3SElectricalMonitoring.

Type
V3SElectricalMonitoring

Struct	
LEDsCurrent	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	A
OperationVoltage	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	V
MinimalVoltage	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	V
MaximalVoltage	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	V

5.15. Type: V3SElectricalLimits

The following section contains a detailed description of the user type V3SElectricalLimits.

Type
V3SElectricalLimits

Struct	
MinAllowedLEDsCurrent	
Real	
Value Range	See specification IEEE 754
Initialisation	0.0
Physical Unit	A
MaxAllowedLEDsCurrent	
Real	
Value Range	See specification IEEE 754
Initialisation	5.0
Physical Unit	A
MinAllowedOpVoltage	
Real	
Value Range	See specification IEEE 754
Initialisation	20.0
Physical Unit	V
MaxAllowedOpVoltage	
Real	
Value Range	See specification IEEE 754
Initialisation	28.0
Physical Unit	V



Index

B

binningOption 109
BlobTcpPortAPI 33
BlobTransportProtocolAPI 32
BlobUdpAutoTransmit 34
BlobUdpControlPortAPI 38
BlobUdpFECEnabled 47
BlobUdpHeaderEnabled 40, 45
BlobUdpHeartbeatInterval 41
BlobUdpIdleTimeBetweenPacketsAPI 44
BlobUdpMaxPacketSizeAPI 42
BlobUdpReceiverIPAPI 36
BlobUdpReceiverPortAPI 37
BootloaderIdentification 89

C

cameraModel 95
CameraModel 157
cameraToWorldMatrix 98
ChangePassword 14
CidVersion 158, 85
cropHeight 108
croppingHeight 108
croppingPositionX 104
croppingPositionY 105
croppingWidth 107
cropPosX 104
cropPosY 105
cropWidth 107
CWMat 98

D

DailyOpHours 68
DeviceIdent 80
DeviceTime 56
DeviceType 84
digitalIOStatus 76
DImanf 82
DIO1Fnc 149
DIO2Fnc 150
DIO3Fnc 151
DIO4Fnc 153
DIO5Fnc 154
DIO6Fnc 155
DItype 84
DoOvrlD 77
DoPinErr 78
doutOverload 77
doutPinError 78

E

EIAddrMode 16
EIDHCPFallback 27
Elgate 23

ElgateDHCP 26
EIPAddr 20
EIPAddrDHCP 24
EILinkState 18
EIMacAdr 19
Elmask 21
ElmaskDHCP 25
ElSpdDpx 28
ElSpdDpxNet 30
ElectricalLimits 58
ElectricalMonitoring 57
EMsgError 63
EMsgFatal 64
EMsgInfo 59
EMsgWarning 61
enableAmbiguityFilter 129
enableCropping 103
enableDistanceFilter 118
enableEdgeCorrection 112
enableIntensityFilter 122
enableIsolatedPixelFilter 126
enableRemissionFilter 132
enAmbFilter 129
enDepthMask 117
enDistFilter 118
enEdgeCorr 112
enIntFilter 122
enIsoPixFilter 126
enRemFilter 132
ErrStructType 159
ErrTimeType 160
EtherAddressingMode 16
EtherDHCPFallback 27
EtherIPAddress 20
EtherIPAddressDHCP 24
EtherIPGateAddress 23
EtherIPGateAddressDHCP 26
EtherIPMask 21
EtherIPMaskDHCP 25
EtherIPSpeedDuplex 28
EtherIPSpeedDuplexNegotiated 30
EtherLinkState 18
EtherMACAddress 19
EthernetUpdate 17

F

FIBootloaderIdent 89
FirmwareVersion 83
FpgaBitstreamVersion 90
framePeriodUs 111
frontendMode 99

G

GetAccessMode 9
GetChallenge 12



H

humidity 55

I

illuminationActive 54
INOUT1_Function 149
INOUT2_Function 150
INOUT3_Function 151
INOUT4_Function 153
INOUT5_Function 154
INOUT6_Function 155
IOFunctionType 160
IOValue 148
isolatedPixelDistanceThres 128
isoPixelDistThres 128

K

KernelVersion 88

L

LoadApplicationDefaults 51
LoadFactoryDefaults 52
LocationName 81
lowerEdgeCorrectionThreshold 113
lowerEdgeCorrThresh 113
lowerRemFilterThresh 133
lowerRemissionFilterThreshold 133

M

Manufacturer 82
Matrix3x3d 161
Matrix4x4 162
Matrix4x4d 162
Matrix5x1d 162
maxDistanceThreshold 121
maxDistThresh 121
maxIntensityThreshold 125
maxIntThresh 125
mEEwriteall 49
Method: ChangePassword 14
Method: EthernetUpdate 17
Method: GetAccessMode 9
Method: GetChallenge 12
Method: LoadApplicationDefaults 51
Method: LoadFactoryDefaults 52
Method: PlayStart 100
Method: PlayStop 102
Method: RebootDevice 50
Method: Run 11
Method: SetUserLevel 10
Method: SingleStep 101
Method: WriteEeprom 49
mEthUpdt 17
minDistanceThreshold 119
minDistThresh 119
minIntensityThreshold 123
minIntThresh 123
mSCloadappdef 51

mSCloadfacdef 52
mSCreboot 50
MSerr 63
MSfat 64
MSinfo 59
MSwarn 61

N

ntpClientServerAddress 142
ntpClientServerPort 143
ntpClientTimeout 144

O

ODopdaily 68
ODoprh 67
ODpwr 66
OpHours 67
OpVoltageStatus 53
OrderNumber 86
OrdNum 86

P

PLAYNEXT 101
PLAYSTART 100
PlayStart 100
PlayStop 102
PLAYSTOP 102
PowerOnCnt 66
ptpMode 146

R

RebootDevice 50
RotationVector3f 163
Run 11

S

scaleAmbFilter 130
scaleAmbiguityFilter 130
SCParamsChanged 48
SCParmChngd 48
sensorOrientation 94
sensorPosition 93
SerialNumber 87
SetUserLevel 10
SingleStep 101
SysTemperatureCurrentValue 70
SysTemperatureErrorLimit 72
SysTemperatureWarningMargin 71

T

TemperatureNames 73
TemperatureValues 74
TempLevel 69
ThreeLevels 163
timeSynchronizationEnabled 136
timeSynchronizationFPS 138
timeSynchronizationOffset 137



timeSyncMode 140
TmpLvl 69
Type: CameraModel 157
Type: CidVersion 158
Type: ErrStructType 159
Type: ErrTimeType 160
Type: IOFunctionType 160
Type: Matrix3x3d 161
Type: Matrix4x4 162
Type: Matrix4x4d 162
Type: Matrix5x1d 162
Type: RotationVector3f 163
Type: ThreeLevels 163
Type: V3SElectricalLimits 166
Type: V3SElectricalMonitoring 165
Type: V3SIOsState 164
Type: Vector3 164

U

upperEdgeCorrectionThreshold 115
upperEdgeCorrThresh 115
upperRemFilterThresh 134
upperRemissionFilterThreshold 134

V

V3SElectricalLimits 166
V3SElectricalMonitoring 165
V3SIOsState 164
Variable: binningOption 109
Variable: BlobTcpPortAPI 33
Variable: BlobTransportProtocolAPI 32
Variable: BlobUdpAutoTransmit 34
Variable: BlobUdpControlPortAPI 38
Variable: BlobUdpFECEnabled 47
Variable: BlobUdpHeaderEnabled 40, 45
Variable: BlobUdpHeartbeatInterval 41
Variable: BlobUdpIdleTimeBetweenPacketsAPI 44
Variable: BlobUdpMaxPacketSizeAPI 42
Variable: BlobUdpReceiverIPAPI 36
Variable: BlobUdpReceiverPortAPI 37
Variable: BootloaderIdentification 89
Variable: cameraModel 95
Variable: cameraToWorldMatrix 98
Variable: CidVersion 85
Variable: croppingHeight 108
Variable: croppingPositionX 104
Variable: croppingPositionY 105
Variable: croppingWidth 107
Variable: DailyOpHours 68
Variable: DeviceIdent 80
Variable: DeviceTime 56
Variable: DeviceType 84
Variable: digitalIOStatus 76
Variable: doutOverload 77
Variable: doutPinError 78
Variable: ElectricalLimits 58
Variable: ElectricalMonitoring 57
Variable: EMsgError 63
Variable: EMsgFatal 64
Variable: EMsgInfo 59
Variable: EMsgWarning 61

Variable: enableAmbiguityFilter 129
Variable: enableCropping 103
Variable: enableDistanceFilter 118
Variable: enableEdgeCorrection 112
Variable: enableIntensityFilter 122
Variable: enableIsolatedPixelFilter 126
Variable: enableRemissionFilter 132
Variable: enDepthMask 117
Variable: EtherAddressingMode 16
Variable: EtherDHCPFallback 27
Variable: EtherIPAddress 20
Variable: EtherIPAddressDHCP 24
Variable: EtherIPGateAddress 23
Variable: EtherIPGateAddressDHCP 26
Variable: EtherIPMask 21
Variable: EtherIPMaskDHCP 25
Variable: EtherIPSpeedDuplex 28
Variable: EtherIPSpeedDuplexNegotiated 30
Variable: EtherLinkState 18
Variable: EtherMACAddress 19
Variable: FirmwareVersion 83
Variable: FpgaBitstreamVersion 90
Variable: framePeriodUs 111
Variable: frontendMode 99
Variable: humidity 55
Variable: illuminationActive 54
Variable: INOUT1_Function 149
Variable: INOUT2_Function 150
Variable: INOUT3_Function 151
Variable: INOUT4_Function 153
Variable: INOUT5_Function 154
Variable: INOUT6_Function 155
Variable: IOValue 148
Variable: isolatedPixelDistanceThres 128
Variable: KernelVersion 88
Variable: LocationName 81
Variable: lowerEdgeCorrectionThreshold 113
Variable: lowerRemissionFilterThreshold 133
Variable: Manufacturer 82
Variable: maxDistanceThreshold 121
Variable: maxIntensityThreshold 125
Variable: minDistanceThreshold 119
Variable: minIntensityThreshold 123
Variable: ntpClientServerAddress 142
Variable: ntpClientServerPort 143
Variable: ntpClientTimeout 144
Variable: OpHours 67
Variable: OpVoltageStatus 53
Variable: OrderNumber 86
Variable: PowerOnCnt 66
Variable: ptpMode 146
Variable: scaleAmbiguityFilter 130
Variable: SCPParamsChanged 48
Variable: sensorOrientation 94
Variable: sensorPosition 93
Variable: SerialNumber 87
Variable: SysTemperatureCurrentValue 70
Variable: SysTemperatureErrorLimit 72
Variable: SysTemperatureWarningMargin 71
Variable: TemperatureNames 73
Variable: TemperatureValues 74
Variable: TempLevel 69
Variable: timeSynchronizationEnabled 136



Variable: timeSynchronizationFPS 138
Variable: timeSynchronizationOffset 137
Variable: timeSyncMode 140
Variable: upperEdgeCorrectionThreshold 115
Variable: upperRemissionFilterThreshold 134
Vector3 164

W

WriteEeprom 49



Australia

Phone +61 (3) 9457 0600
1800 33 48 02 - tollfree
E-Mail sales@sick.com.au

Austria

Phone +43 (0) 2236 62288-0
E-Mail office@sick.at

Belgium/Luxembourg

Phone +32 (0) 2 466 55 66
E-Mail info@sick.be

Brazil

Phone +55 11 3215-4900
E-Mail comercial@sick.com.br

Canada

Phone +1 905.771.1444
E-Mail cs.canada@sick.com

Czech Republic

Phone +420 234 719 500
E-Mail sick@sick.cz

Chile

Phone +56 (2) 2274 7430
E-Mail chile@sick.com

China

Phone +86 20 2882 3600
E-Mail info.china@sick.net.cn

Denmark

Phone +45 45 82 64 00
E-Mail sick@sick.dk

Finland

Phone +358-9-25 15 800
E-Mail sick@sick.fi

France

Phone +33 1 64 62 35 00
E-Mail info@sick.fr

Germany

Phone +49 (0) 2 11 53 010
E-Mail info@sick.de

Greece

Phone +30 210 6825100
E-Mail office@sick.com.gr

Hong Kong

Phone +852 2153 6300
E-Mail ghk@sick.com.hk

Hungary

Phone +36 1 371 2680
E-Mail ertesites@sick.hu

India

Phone +91-22-6119 8900
E-Mail info@sick-india.com

Israel

Phone +972 97110 11
E-Mail info@sick-sensors.com

Italy

Phone +39 02 27 43 41
E-Mail info@sick.it

Japan

Phone +81 3 5309 2112
E-Mail support@sick.jp

Malaysia

Phone +603-8080 7425
E-Mail enquiry.my@sick.com

Mexico

Phone +52 (472) 748 9451
E-Mail mexico@sick.com

Netherlands

Phone +31 (0) 30 229 25 44
E-Mail info@sick.nl

New Zealand

Phone +64 9 415 0459
0800 222 278 - tollfree
E-Mail sales@sick.co.nz

Norway

Phone +47 67 81 50 00
E-Mail sick@sick.no

Poland

Phone +48 22 539 41 00
E-Mail info@sick.pl

Romania

Phone +40 356-17 11 20
E-Mail office@sick.ro

Russia

Phone +7 495 283 09 90
E-Mail info@sick.ru

Singapore

Phone +65 6744 3732
E-Mail sales.gsg@sick.com

Slovakia

Phone +421 482 901 201
E-Mail mail@sick-sk.sk

Slovenia

Phone +386 591 78849
E-Mail office@sick.si

South Africa

Phone +27 10 060 0550
E-Mail info@sickautomation.co.za

South Korea

Phone +82 2 786 6321/4
E-Mail infokorea@sick.com

Spain

Phone +34 93 480 31 00
E-Mail info@sick.es

Sweden

Phone +46 10 110 10 00
E-Mail info@sick.se

Switzerland

Phone +41 41 619 29 39
E-Mail contact@sick.ch

Taiwan

Phone +886-2-2375-6288
E-Mail sales@sick.com.tw

Thailand

Phone +66 2 645 0009
E-Mail marcom.th@sick.com

Turkey

Phone +90 (216) 528 50 00
E-Mail info@sick.com.tr

United Arab Emirates

Phone +971 (0) 4 88 65 878
E-Mail contact@sick.ae

United Kingdom

Phone +44 (0)17278 31121
E-Mail info@sick.co.uk

USA

Phone +1 800.325.7425
E-Mail info@sick.com

Vietnam

Phone +65 6744 3732
E-Mail sales.gsg@sick.com

Detailed addresses and further locations at www.sick.com