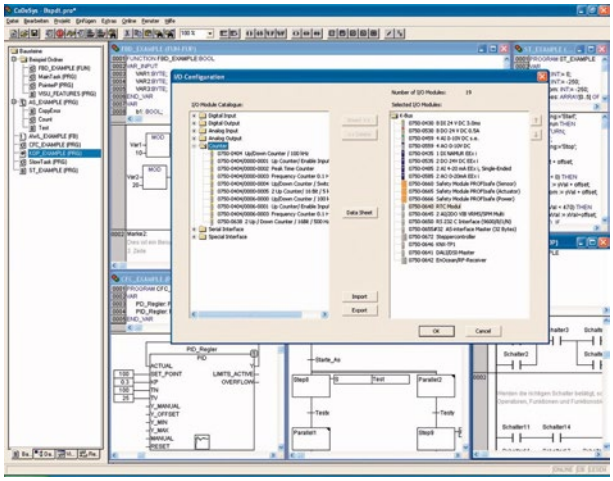
Library Description



WAGO Software
CODESYS Library
WagoLibNetSnmpManager.lib
for implementing SNMP Manager functions

Version 1.1.0

WAGO Kontakttechnik GmbH & Co. KG

Hansastraße 27
D-32423 Minden

Phone: +49 (0) 571/8 87 – 0
Fax: +49 (0) 571/8 87 – 1 69

E-Mail: info@wago.com

Web: http://www.wago.com

Technical Support

Phone: +49 (0) 571/8 87 – 5 55
Fax: +49 (0) 571/8 87 – 85 55

E-Mail: support@wago.com

Every conceivable measure has been taken to ensure the accuracy and completeness of this documentation. However, as errors can never be fully excluded, we always appreciate any information or suggestions for improving the documentation.

E-Mail: documentation@wago.com

We wish to point out that the software and hardware terms as well as the trademarks of companies used and/or mentioned in the present manual are generally protected by trademark or patent.

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1 Notes about this Documentation

1.1 Copyright

1.2 Symbols

DANGER

Personal Injury!
Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

DANGER

Personal Injury Caused by Electric Current!
Indicates a high-risk, imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

Personal Injury!
Indicates a moderate-risk, potentially hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION

Personal Injury!
Indicates a low-risk, potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

NOTICE

Damage to Property!
Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

NOTICE

Damage to Property Caused by Electrostatic Discharge (ESD)!
Indicates a potentially hazardous situation which, if not avoided, may result in damage to property.

Note

Important Note!
Indicates a potential malfunction which, if not avoided, however, will not result in damage to property.

Information

Additional Information:
Refers to additional information which is not an integral part of this documentation (e.g., the Internet).

1.3 Number Notation

Table 1: Number Notation

Number Code	Example	Note
Decimal	100	Normal notation
Hexadecimal	0x64	C notation
Binary	'100' '0110.0100'	In quotation marks, nibble separated with dots (.)

1.4 Font Conventions

Table 2: Font Conventions

Font Type	Indicates
italic	Names of paths and data files are marked in italic-type. e.g.: *C:\Program Files\WAGO Software*
Menu	Menu items are marked in bold letters. e.g.: **Save**
>	A greater-than sign between two names means the selection of a menu item from a menu. e.g.: **File** > **New**
Input	Designation of input or optional fields are marked in bold letters, e.g.: **Start of measurement range**
“Value”	Input or selective values are marked in inverted commas. e.g.: Enter the value “4 mA” under **Start of measurement range**.
[Button]	Pushbuttons in dialog boxes are marked with bold letters in square brackets. e.g.: **[Input]**
[Key]	Keys are marked with bold letters in square brackets. e.g.: **[F5]**

2 WagoLibNetSnmpManager.lib

The “WagoLibNetSnmpManager.lib” library is used to implement SNMP manager functions. This makes it possible to access other SNMP agents as well as call and modify OIDs via an IEC program.

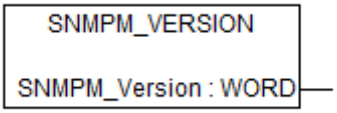
2.1 SMNPM_Version

The “SNMPM_Version” function is used to determine the version of the library implemented.

Category	Query version
Name	SNMPM_Version
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Output parameter		
Name	**Data Type**	**Description**
SNMPM_Version	WORD	Library version

Graphical illustration



Description

This function returns the version with which the library was implemented in the firmware

2.2 SNMPM_DINT_TO_TLV

Using the “SNMPM_DINT_TO_TLV” function you can initialize a “tSNMPM_TLV” entity with a signed 32-bit integer value. A DINT entity is transferred for this as the initialization value, and the target data type is also selected.

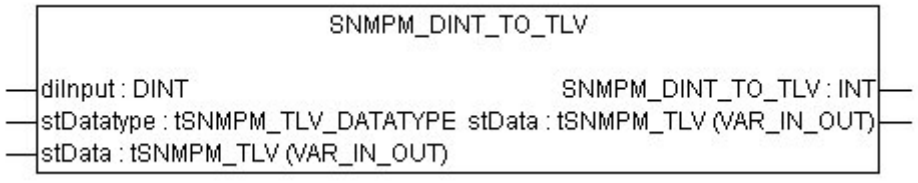
Category	Conversion of data types
Name	SNMPM_DINT_TO_TLV
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
diInput	DINT	Value to be converted in SNMP-TLV
stDatatype	tSNMPM_TLV_ DATATYPE	Specification of the SNMP target data type

Input/output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for SNMP data

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_DINT_TO_ TLV	INT	Error code	
		0	Successful
		5	Conversion not possible
		7	Insufficient memory

Graphical illustration



Description
This function is used to initialize a tSNMPM_TLV entity with the value given by diInput and the data type specified by stDatatype. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. This can occur, for example, when an attempt is made to convert a signed value (DINT) to an unsigned value (SNMPM_TLV_GAUGE). The valid SNMP data type SNMP_TLV_INTEGER exists for this function. A return value of 7 indicates that there is insufficient memory in the device, meaning that stData could not be correctly initialized.

2.3 SNMPM_NULL_TO_TLV

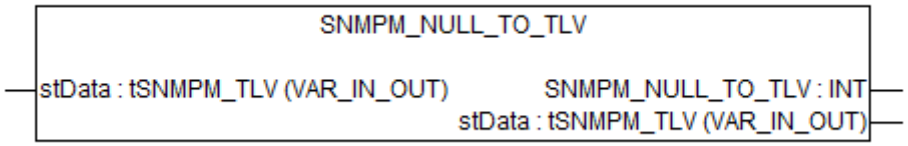
The “SNMPM_NULL_TO_TLV” function is used to clear a “tSNMPM_TLV” entity. This instance can then be used, for example, to send traps without appending any additional information.

Category	Conversion of data types
Name	SNMPM_NULL_TO_TLV
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input/output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for SNMP data

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_NULL_TO_TLV	INT	Error code	
		0	Successful
		7	Insufficient memory

Graphical illustration



Description

This function is used to initialize a tSNMPM_TLV entity with ZERO.

A 0 (zero) is returned when this action is successful.

In the event of an error, the return value is not equal to 0.

A return value of 7 indicates that there is insufficient memory in the device, meaning that stData could not be correctly initialized.

2.4 SNMPM_UDINT_TO_TLV

The “SNMPM_UDINT_TO_TLV” function is used to initialize a “tSNMPM_TLV” entity with a signed 32-bit integer value. In this process, a UDINT entity is transferred as the initialization value and the target data type is also selected.

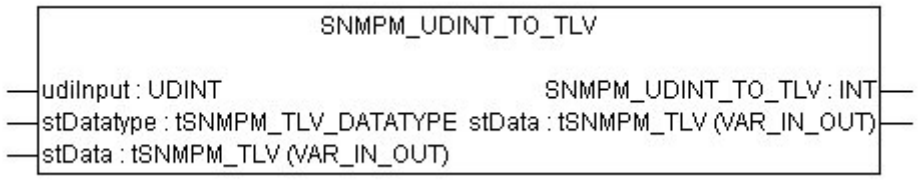
Category	Conversion of data types
Name	SNMPM_UDINT_TO_TLV
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
udiInput	UDINT	Value to be converted in SNMP-TLV
stDatatype	tSNMPM_TLV_ DATATYPE	Specification of the SNMP target data type

Input/output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for SNMP data

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_UDINT_TO_ TLV	INT	Error code	
		0	Successful
		5	Conversion not possible
		7	Insufficient memory

Graphical illustration



Description
This function is used to initialize a tSNMPM_TLV entity with the value given in udiInput and the data type specified by stDatatype. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. This can occur, for example, when an attempt is made to convert a positive value (DINT) to a signed value (SNMPM_TLV_INTEGER). The valid SNMP data types SNMP_TLV_GAUGE, SNMPM_TLV_TIMETICKS, SNMPM_TLV_COUNTER and SNMPM_TLV_UINTEGER exist for this function. A return value of 7 indicates that there is insufficient memory in the device, meaning that stData could not be correctly initialized.

2.5 SNMPM_STRING_TO_TLV

Using the “SNMPM_STRING_TO_TLV” function you can initialize a “tSNMPM_TLV” entity with a string (STRING) of up to 255 characters. In this process, a STRING(255) entity is transferred as the initialization value and the target data type also selected. Strings can also be converted to numerical values.

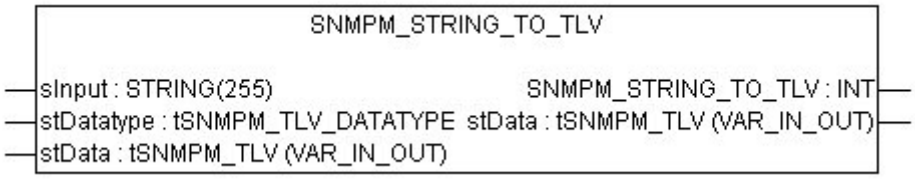
Category	Conversion of data types
Name	SNMPM_STRING_TO_TLV
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
sInput	STRING(255)	String to be converted in SNMP-TLV
stDatatype	tSNMPM_TLV_DATATYPE	Specification of the SNMP target data type

Input/output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for SNMP data

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_STRING_TO_TLV	INT	Error code	
		0	Successful
		5	Conversion not possible
		7	Insufficient memory
		8	String conversion not possible

Graphical illustration



Description
Using this function, a tSNMPM_TLV entity is initialized with the string transferred in sInput and the data type specified by stDatatype. An attempt is made to convert the string into numerical data types when required, meaning that this function can convert to nearly all types of data. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. A return value of 7 indicates that there is insufficient memory in the device. A return value of 8 indicates that it is not possible to convert stData to a string.

2.6 SNMPM_TLV_TO_DINT

Using the “SNMPM_TLV_TO_DINT” function you can extract the associated value from a “tSNMPM_TLV” entity that has been initialized using a signed 32-bit integer value. A DINT variable is transferred as the target entity in this process.

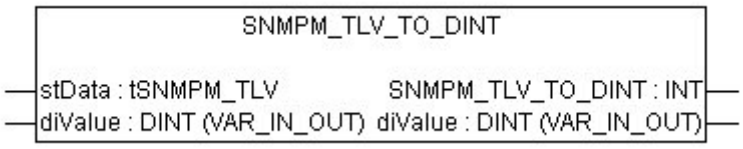
Category	Conversion of data types
Name	SNMPM_TLV_TO_DINT
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container from which the DINT value is to be extracted

Input/output parameter		
Name	**Data Type**	**Description**
diValue	DINT	Target for DINT value

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_TLV_TO_DINT	INT	Error code	
		0	Successful
		5	Conversion not possible

Graphical illustration



Description
This function is used to extract the value from a tSNMPM_TLV (stData) entity that was previously initialized with a signed 32-bit value and write this value to the target variable diValue. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. This can occur, for example when stData does not contain a signed 32-bit value (e.g., SNMPM_TLV_GAUGE).

2.7 SNMPM_TLV_TO_UDINT

The “SNMPM_TLV_TO_UDINT” function is used to extract the associated value from a “tSNMPM_TLV” entity that has been initialized using a signed 32-bit integer value. A UDINT variable is transferred as the target entity in this process.

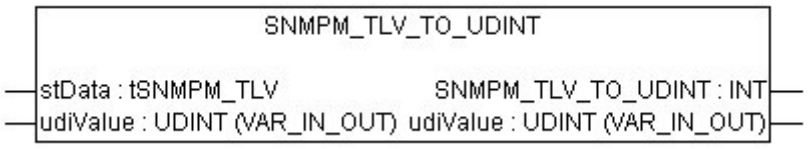
Category	Conversion of data types
Name	SNMPM_TLV_TO_UDINT
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container from which the UDINT value is to be extracted

Input/output parameter		
Name	**Data Type**	**Description**
udiValue	UDINT	Target for the UDINT value

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_TLV_TO_ UDINT	INT	Error code	
		0	Successful
		5	Conversion not possible

Graphical illustration



Description
This function is used to extract the associated value from a tSNMPM_TLV (stData) entity that was previously initialized with an unsigned 32-bit value and to write this value to the target variable diValue. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. This can occur, for example, when stData contains a signed 32-bit value (e.g., SNMPM_TLV_INTEGER).

2.8 SNMPM_TLV_TO_STRING

Using the SNMPM_TLV_TO_STRING function, the respective value can be extracted as a STRING from a tSNMPM_TLV entity that has been initialized with any arbitrary value. A STRING(255) variable is transferred as the target entity in this process.

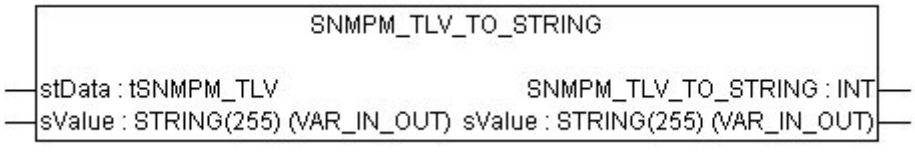
Category	Conversion of data types
Name	SNMPM_TLV_TO_STRING
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container from which the value is to be extracted

Input/output parameter		
Name	**Data Type**	**Description**
sValue	STRING(255)	STRING value target

Output parameter			
Name	**Data Type**	**Description**	
SNMPM_TLV_TO_ STRING	INT	Error code	
		0	Successful
		5	Conversion not possible
		6	String in stData is too long and has been cut off at 255 characters.
		7	Insufficient memory
		8	String conversion not possible
		9	stData has not been initialized.

Graphical illustration



Description
This function is used to extract the respective value as a string from a tSNMPM_TLV (stData) entity that was previously initialized and write this value to the target variable sValue. A 0 (zero) is returned when this action is successful. In the event of an error, the return value is not equal to 0. A return value of 5 indicates that conversion is not possible. A return value of 6 indicates that the string contained in stData is too long and that the return string has been cut off. A return value of 9 indicates that stData has not been initialized.

2.9 SNMPM_GET

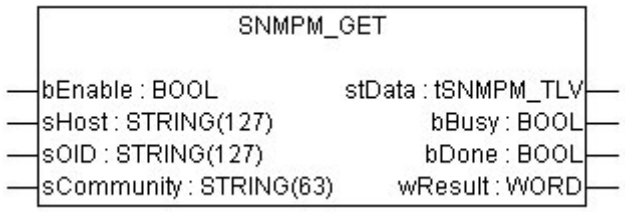
The SNMPM_GET function block calls OID data from a specified host, using SNMPv1 in the process.

Category	Query OIDs
Name	SNMPM_GET
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started
sHost	STRING(127)	Indicates the target host name or an IP address
sOID	STRING(127)	OID to be queried
sCommunity	STRING(63)	Indicates the SNMP community

Output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for the results of a query
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wError	WORD	Return value/Error code

Graphical illustration



Description	
Using the SNMPM_GET function block, an individual “SNMP v1 GET” query can be transmitted and an OID queried from a remote or local host. sHost is used here to indicate the target. The string “localhost” or IP 127.0.0.1 can be used for this to query data from the local host. Use of the “localhost” string is, however, recommended. If the query has been completed successfully, the value for the queried OID is saved in stData. If an error occurs, the variable wResult receives a value not equal to 0. The following error codes can be issued for this:	
1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
10	Timeout: No response received from the target host.
11	The SNMP packet that was received contains corrupt data.
12	Critical error: The function block has not been properly initialized.

2.10 SNMPM_GET_V3

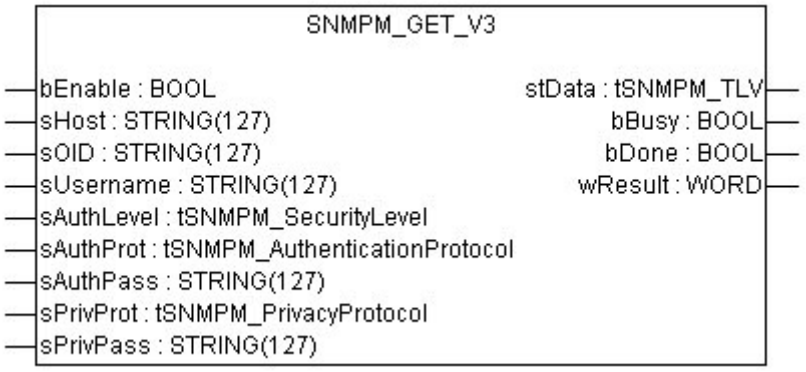
The SNMPM_GET_V3 function block calls OID data from the specified host, using SNMPv3 in the process.

Category	Query OIDs
Name	SNMPM_GET_V3
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started
sHost	STRING(127)	Indicates the target host name or an IP address
sOID	STRING(127)	OID to be queried
sUsername	STRING(127)	Indicates the SNMP user name
sAuthLevel	tSNMPM_ SecurityLevel	Indicates the security level
sAuthProt	tSNMPM_ Authentication Protocol	Indicates the protocol to be used for authentication
sAuthPass	STRING(127)	Password for authentication
sPrivProt	tSNMPM_ PrivacyProtocol	Indicates the encryption method to be used
sPrivPass	STRING(127)	Pass phrase for encryption

Output parameter		
Name	**Data Type**	**Description**
stData	tSNMPM_TLV	Container for the results of a query
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wError	WORD	Return value/Error code

Graphical illustration



Description

Using the SNMPM_GET_V3 function block, an individual “SNMP v3 GET” query can be transmitted and an OID queried from a remote or local host.
sHost is used here to indicate the target. The string “localhost” or IP 127.0.0.1 can be used for this to query data from the local host. Use of the “localhost” string is, however, recommended.
In addition, the user name, the security level and, where applicable, the encryption protocols to be used must be indicated here. More information about this is given in the descriptions for the specific data types.
If the query has been completed successfully, the value for the queried OID is saved in stData. If an error occurs, the variable wResult receives a value not equal to 0.
The following error codes can be issued for this:

1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
10	Timeout: No response received from the target host
11	The SNMP packet that was received contains corrupt data.
12	Critical error: The function block has not been properly initialized.
13	The authentication pass phrase could not be generated.
14	The encryption pass phrase could not be generated.

2.11 SNMPM_SET

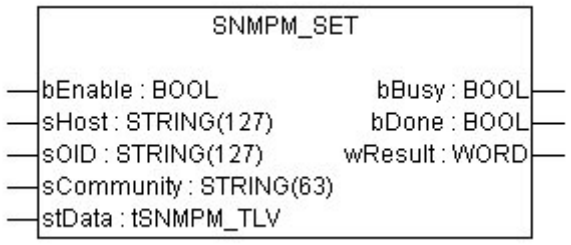
The SNMPM_SET function block sets OID data at the specified host, using SNMPv1 in the process.

Category	Set OIDs
Name	SNMPM_SET
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started
sHost	STRING(127)	Indicates the target host name or an IP address
sOID	STRING(127)	OID to be queried
sCommunity	STRING(63)	Indicates the SNMP community
stData	tSNMPM_TLV	Container with the data item to be set

Output parameter		
Name	**Data Type**	**Description**
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wError	WORD	Return value/Error code

Graphical illustration



Description	
Using the SNMPM_SET function block, an individual “SNMP v1 SET” query can be sent, allowing an OID to be set at a remote or local host. sHost is used here to indicate the target. The string “localhost” or IP 127.0.0.1 can be used for this to set data at the local host. Use of the “localhost” string is, however, recommended. If an error occurs, the variable wResult receives a value not equal to 0. The following error codes can be issued for this:	
1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
10	Timeout: No response received from the target host
11	The SNMP packet that was received contains corrupt data.
12	Critical error: The function block has not been properly initialized.

2.12 SNMPM_SET_V3

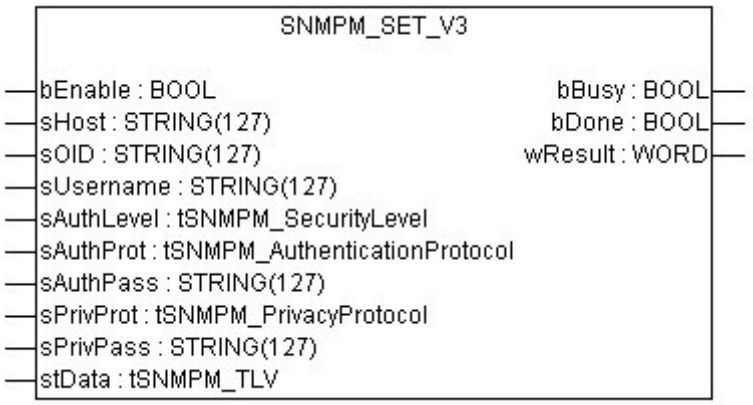
The SNMPM_SET_V3 function block sets OID data at the specified host, using SNMPv3 in the process.

Category	Set OIDs
Name	SNMPM_SET_V3
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started.
sHost	STRING(127)	Indicates the target host name or an IP address
sOID	STRING(127)	OID to be queried
sUsername	STRING(127)	Indicates the SNMP user name
sAuthLevel	tSNMPM_ SecurityLevel	Indicates the security level
sAuthProt	tSNMPM_ Authentication Protocol	Indicates the protocol to be used for authentication
sAuthPass	STRING(127)	Password for authentication
sPrivProt	tSNMPM_ PrivacyProtocol	Indicates the encryption method to be used
sPrivPass	STRING(127)	Pass phrase for encryption
stData	tSNMPM_TLV	Container with the data item to be set

Output parameter		
Name	**Data Type**	**Description**
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wError	WORD	Return value/Error code

Graphical illustration



Description

Using the “SNMPM_SET_V3” function block, individual “SNMP v3 SET” queries can be sent, allowing an OID to be set at a remote or local host.
sHost is used here to indicate the target. The string “localhost” or IP 127.0.0.1 can be used for this to set data at the local host. Use of the “localhost” string is, however, recommended.
In addition, the user name, the security level and the encryption protocols to be used must be indicated here. More information about this is given in the descriptions for the specific data types.
If the query has been completed successfully, the value for the queried OID is saved in stData. If an error occurs, the variable wResult receives a value not equal to 0.
The following error codes can be issued for this:

1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
10	Timeout: No response received from the target host
11	The SNMP packet that was received contains corrupt data.
12	Critical error: The function block has not been properly initialized.
13	The authentication pass phrase could not be generated.
14	The encryption pass phrase could not be generated.

2.13 SNMPT_SEND_ENT_TRAP

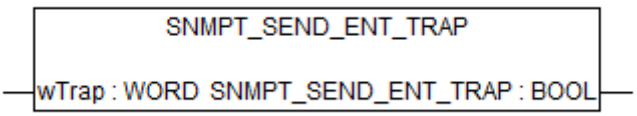
The “SNMPT_SEND_ENT_TRAP” function sends a single user-specific trap (enterprise-trap). The targets for this trap can be configured via the WBM and CBM.

Category	Send traps
Name	SNMPT_SEND_ENT_TRAP
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
wTrap	WORD	Trap number

Output parameter		
Name	**Data Type**	**Description**
SNMPT_SEND_ENT_TRAP	BOOL	Return value/Error code

Graphical illustration



Description

Using the “SNMPT_SEND_ENT_TRAP” it is possible to send a so-called “enterprise”, i.e., a user-defined trap.
The recipients entered in the SNMP configuration are used as the target or targets for this trap.

2.14 SNMPT_SEND_TRAP

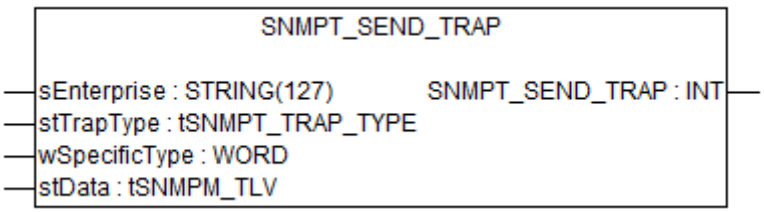
The “SNMPT_SEND_TRAP” sends a single user-specific trap. The targets for this trap can be configured via the WBM and CBM.

Category	Send traps
Name	SNMPT_SEND_TRAP
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
sEnterprise	STRING(127)	OID to be queried
stTrapType	tSNMPT_TRAP_ TYPE	Type of trap
wSpecificType	WORD	Specific trap type
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
SNMPT_SEND_TRAP	INT	Return value/Error code

Graphical illustration



Description

Using the “SNMPT_SEND_TRAP” function, it is possible to send an SNMP trap. The recipients entered in the SNMP configuration are used as the target or targets for this trap.

2.15 SNMPT_SEND_TRAP_TO_ADR_V1

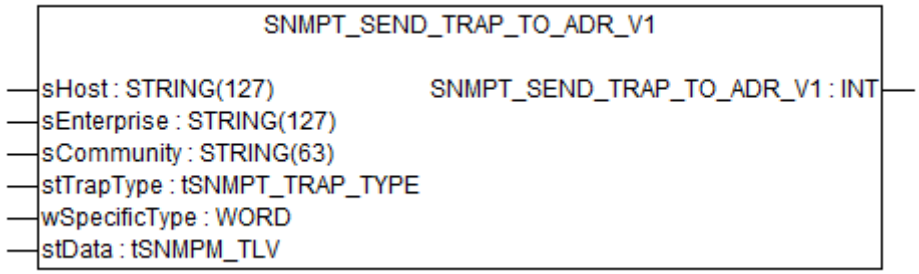
The “SNMPT_SEND_TRAP_TO_ADR_V1” sends a single user-specific trap in the SNMP protocol version 1 variant. The target is transferred to the function as a parameter.

Category	Send traps
Name	
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
sHost	STRING(127)	Indicates the target host name or an IP address
sEnterprise	STRING(127)	OID to be queried
sCommunity	STRING(63)	Indicates the SNMP community
stTrapType	tSNMPT_TRAP_ TYPE	Type of trap
wSpecificType	WORD	Specific trap type
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
SNMPT_SEND_ TRAP_TO_ADR_V1	INT	Return value/Error code

Graphical illustration



Description

Using the “SNMPT_SEND_TRAP_TO_ADR_V1” function, it is possible to send an SNMP trap.
An IP address is transferred as the target or targets to the function for this trap.

2.16 SNMPT_SEND_TRAP_TO_ADR_V2c

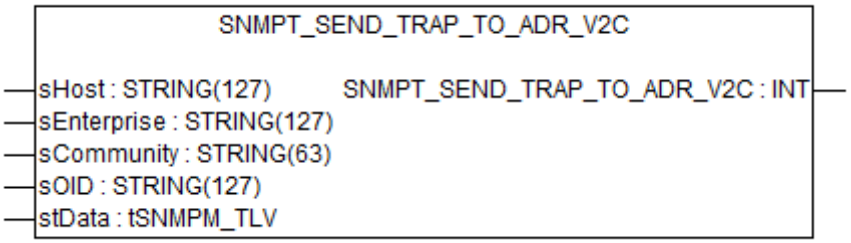
The “SNMPT_SEND_TRAP_TO_ADR_V2c” sends a single user-specific trap in the variant of the SNP protocol version 2c. The target is transferred to the function as a parameter.

Category	Send traps
Name	
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
sHost	STRING(127)	Indicates the target host name or an IP address
sEnterprise	STRING(127)	OID to be queried
sCommunity	STRING(63)	Indicates the SNMP community
sOID	STRING(127)	OID of the trap object
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
SNMPT_SEND_ TRAP_TO_ADR_V2C	INT	Return value/Error code

Graphical illustration



Description

Using the “SNMPT_SEND_TRAP_TO_ADR_V2c” function, it is possible to send an SNMP trap.
An IP address is transferred as the target or targets to the function for this trap.

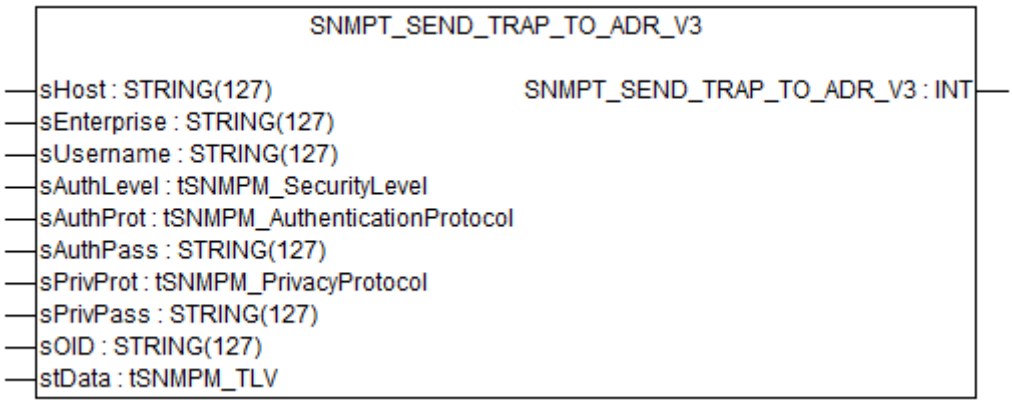
2.17 SNMPT_SEND_TRAP_TO_ADR_V3

The “SNMPT_SEND_TRAP_TO_ADR_V3” function sends a single user-specific trap in the variant of the SNMP protocol version 2c. The target is transferred to the function as a parameter.

Category	Send traps
Name	
Type	Function
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
sHost	STRING(127)	Indicates the target host name or an IP address
sEnterprise	STRING(127)	OID to be queried
sUsername	STRING(127)	Indicates the SNMP user name
sAuthLevel	tSNMPM_ SecurityLevel	Indicates the security level
sAuthProt	tSNMPM_ Authentication Protocol	Indicates the protocol to be used for authentication
sAuthPass	STRING(127)	Password for authentication
sPrivProt	tSNMPM_ PrivacyProtocol	Indicates the encryption method to be used
sPrivPass	STRING(127)	Pass phrase for encryption
sOID	STRING(127)	OID of the trap object
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
SNMPT_SEND_ TRAP_TO_ADR_V3	INT	Return value/Error code

Graphical illustration


Description
Using the “SNMPT_SEND_TRAP_TO_ADR_V3” function, it is possible to send an SNMP trap. An IP address is transferred as the target or targets to the function for this trap.

2.18 SNMPT_SEND_INFORM_ADR

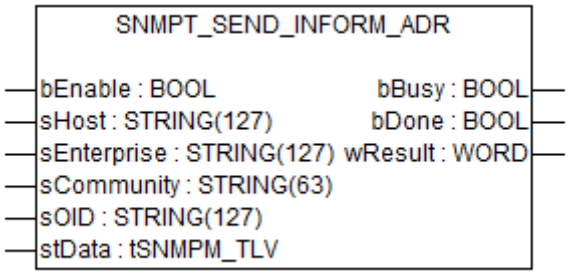
The “SNMPT_SEND_INFORM_ADR” function block sends an “SNMP V2 Inform” message to a recipient defined with the call.

Category	Send traps
Name	SNMPT_SEND_INFORM_ADR
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started
sHost	STRING(127)	Indicates the target host name or an IP address
sEnterprise	STRING(127)	OID to be queried
sCommunity	STRING(63)	Indicates the SNMP community
sOID	STRING(127)	OID of the trap object
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wResult	WORD	Return value/Error code

Graphical illustration



Description	
Using the “SNMPT_SEND_INFORM_ADR” function block it is possible to send an “SNMP v2 inform” message. sHost is used here to indicate the target. If an error occurs, the variable wResult receives a value not equal to 0. The following error codes can be issued for this:	
1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
12	Critical error: The function block has not been properly initialized.

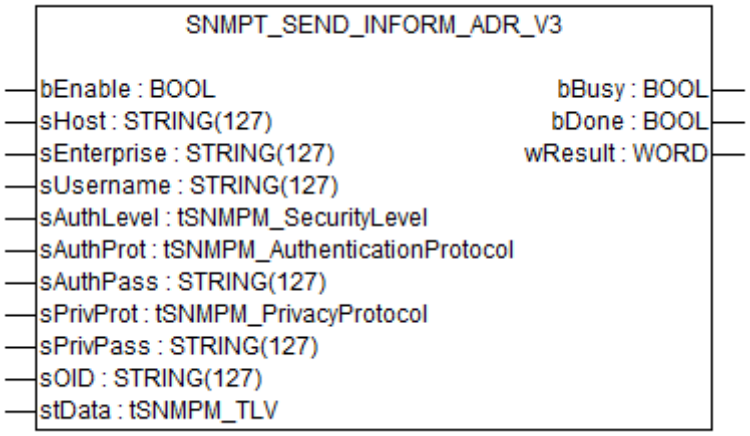
2.19 SNMPT_SEND_INFORM_ADR_V3

Using the “SNMPT_SEND_INFORM_ADR_V3” function block it is possible to send an “SNMP V3 inform” message to a recipient defined with the call.

Category	Send traps
Name	SNMPT_SEND_INFORM_ADR_V3
Type	Function block
Name of library	WagoLibNetSnmpManager.lib
Required libraries	---
Applicable to	750-82xx (from FW03)

Input parameter		
Name	**Data Type**	**Description**
bEnable	BOOL	Notifies the function block that data exchange is to be started
sHost	STRING(127)	Indicates the target host name or an IP address
sEnterprise	STRING(127)	OID to be queried
sUsername	STRING(127)	Indicates the SNMP user name
sAuthLevel	tSNMPM_ SecurityLevel	Indicates the security level
sAuthProt	tSNMPM_ Authentication Protocol	Indicates the protocol to be used for authentication
sAuthPass	STRING(127)	Password for authentication
sPrivProt	tSNMPM_ PrivacyProtocol	Indicates the encryption method to be used
sPrivPass	STRING(127)	Pass phrase for encryption
sOID	STRING(127)	OID of the trap object
stData	tSNMPM_TLV	Container with a data item to be appended to the trap

Output parameter		
Name	**Data Type**	**Description**
bBusy	BOOL	Indicates that the function block is still busy
bDone	BOOL	Indicates that the query has been completed
wResult	WORD	Return value/Error code

Graphical illustration


Description	
Using the “SNMPT_SEND_INFORM_ADR_V3” function block it is possible to send an “SNMP v3 INFORM” message. sHost is used here to indicate the target. If an error occurs, the variable wResult receives a value not equal to 0. The following error codes can be issued for this:	
1	It was not possible to properly initialize the SNMP session.
2	An internal error has occurred.
3	Error while analyzing the OID string
4	Error during data exchange with the target host
12	Critical error: The function block has not been properly initialized.

2.20 tSNMPM_TLV

The data type tSNMPM_TLV contains the OID raw data required for SNMP.

Category	SNMP data container
Name	tSNMPM_TLV
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx
Structure	STRUCT

Element	Value	Description
Net_snmp_variable_list	---	Byte array

Description
tSNMPM_TLV is the central data format for this library. Data that is to be sent or received must be available in this data format. The net-snmp equivalent of a TLV element is reflected in the IEC area, serving as the data basis for conversion functions.

2.21 tSNMPM_TLV_DATATYPE

The data type tSNMPM_TLV_DATATYPE declares SNMP data types.

Category	SNMP data type declarations
Name	tSNMPM_TLV_DATATYPE
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx
Structure	ENUM

Element	Value	Description
SNMPM_TLV_ INTEGER	2	INTEGER value (DINT)
SNMPM_TLV_ BITS	3	BIT_STRING value (STRING)
SNMPM_TLV_ STRING	4	STRING value (STRING)
SNMPM_TLV_ OBJECT_ID	6	OID value (STRING)
SNMPM_TLV_IP_ ADDRESS	64	IP address (STRING)
SNMPM_TLV_ COUNTER	65	Counter value (UDINT)
SNMPM_TLV_ GAUGE	66	UDINT value (UDINT)
SNMPM_TLV_ TIMETICKS	67	Time value (UDINT)
SNMPM_TLV_ UINTEGER	71	UDINT value (UDINT)

Description
tSNMPM_TLV_DATATYPE declares the SNMP data types that are available. SNMP offers a wide range of different data types, which have other designations in IEC, or which do not exist within IEC. The SNMP agents require that the data type be exactly specified in order to set an OID correctly. This enumeration offers the possibility of using some of the most common data types.

2.22 tSNMPM_SecurityLevel

The data type tSNMPM_SecurityLevel defines the available SNMP security levels.

Category	SNMP security
Name	tSNMPM_SecurityLevel
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx
Structure	ENUM

Element	Value	Description
SNMPM_SECURITY_NoAuthNoPriv	1	No authentication and no encryption
SNMPM_SECURITY_AuthNoPriv	2	Authenticate but do not encrypt
SNMPM_SECURITY_AuthPriv	3	Authenticate and encrypt

Description
tSNMPM_SecurityLevel defines the requested security level in the SNMPv3 protocol. SNMPM_SECURITY_NoAuthNoPriv indicates that neither authentication nor encryption is to be employed (the communication is therefore just as insecure as with v1/v2c). SNMPM_SECURITY_AuthNoPriv indicates that authentication is to be employed, but not encryption (everything is still transferred in plain text). SNMPM_SECURITY_AuthPriv is the highest security level, meaning that not only are user name and password to be used, but encryption as well.

2.23 tSNMPM_AuthenticationProtocol

The data type tSNMPM_AuthenticationProtocol defines the algorithms available for generating a password hash for authentication.

Category	SNMP security
Name	tSNMPM_AuthenticationProtocol
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx
Structure	ENUM

Element	Value	Description
SNMPM_AUTHP_ NONE	1	No password
SNMPM_AUTHP_ MD5	2	MD5 algorithm being used
SNMPM_AUTHP_ SHA	3	SHA1 algorithm being used

Description
tSNMPM_AuthenticationProtocol defines the algorithm for generating a hash from the given password. For communication via SNMP v3, passwords are not transmitted as plain-language words; hashes are generated instead. Different algorithms can also be specified when creating a user for generation of the hash values; the client must likewise select the correct algorithm. If a security level without password authentication is selected, you can enter SNMPM_AUTHP_NONE here.

2.24 tSNMPM_PrivacyProtocol

The data type tSNMPM_PrivacyProtocol defines the encryption techniques that are available.

Category	SNMP security
Name	tSNMPM_PrivacyProtocol
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx
Structure	ENUM

Element	Value	Description
SNMPM_PRIVP_ NONE	1	No encryption
SNMPM_PRIVP_ DES	2	DES encryption used
SNMPM_PRIVP_ AES	3	AES encryption used

Description
tSNMPM_PrivacyProtocol defines the encryption to be used for “SNMP v3” communication. If a security level without encryption is selected, you can enter SNMPM_PRIVP_NONE here.

2.25 tSNMPT_TRAP_TYPE

The data type tSNMPT_TRAP_TYPE defines the trap types available.

Category	SNMP trap
Name	tSNMPT_TRAP_TYPE
Type	Data Type
Name of library	WagoLibNetSnmpManager.lib
Applicable to	750-82xx (from FW03)
Structure	ENUM

Element	Value	Description
SNMPT_TRAP_ COLDSTART	0	Cold Start
SNMPT_TRAP_ WARMSTART	1	Warm restart
SNMPT_TRAP_ LINKDOWN	2	ETH link lost
SNMPT_TRAP_ LINKUP	3	ETH link connected
SNMPT_TRAP_ AUTHFAILS	4	Authentication error
SNMPT_TRAP_ EGPNEIGHBORLOSS	5	EGP neighbor lost
SNMPT_TRAP_ ENTERPRISE SPECIFIC	6	Enterprise-specific trap

Description
tSNMPT_TRAP_TYPE defines the types that can be sent with SNMPT_SEND_TRAP and SNMPT_SEND_TRAP_TO_ADR_V1.

List of Tables

WAGO Kontakttechnik GmbH & Co. KG
Postfach 2880 • D-32385 Minden
Hansastraße 27 • D-32423 Minden
Phone: +49/5 71/8 87 – 0
Fax: +49/5 71/8 87 – 1 69
E-Mail: info@wago.com

Internet: http://www.wago.com