

Driver M-bus

Description

- Protocol implementation according to EN 13757-2 and EN 13757-3
- connection of M-bus devices through local M-Bus converter
- connection of M-bus devices through unlimited number of remote M-Bus/TCP converters
- driver for reading M-Bus devices uses primary addressing
- configuring basic M-Bus device parameters:
 - primary address
 - secondary address
 - transfer speed
 - reading basic parameters:
 - manufacturer
 - medium
 - primary address
 - secondary address
- integrated M-Bus telegram analyzer, which can be used to create read profile from unknown device
- creating M-Bus telegram with command (e.g. command to disable button) and its sending through associated Bacnet point
- it is possible to assign mathematical operations to each M-Bus point:
 - add value
 - subtract value
 - multiply by value
 - divide by value
 - mathematical operations are computed with double precision float numbers
- each M-bus device has created point containing state value of last reading
- active reading profile can be tested and its return results displayed
- Bacnet point for manual start of M-Bus devices reading
- virtual M-bus/TCP converter:
 - allows direct device configuration with manufacturers software on device
 - slave mode - paralel sensor reading with packet insertion from TCP client
 - master mód - disables devices reading and master client gains exclusive access to M-Bus converter



Knowledge of [M-bus](#) protocol is required to work with this driver.

Virtual gateway M-bus/TCP

Enables direct configuration of M-Bus devices with manufacturers software.

Virtual COM port emulator is required to use this function. For Windows we recommend to use [VSPE](#), 32-bit version is free.

Master connection

Enables exclusive access to M-Bus converter. All M-Bus functions of M-Bus/Bacnet converter are disabled while connection is active.



Connection is established with **TCP** protocol on port **2001**.

Slave connection

Retains M-bus/Bacnet converter functions and adds received telegrams from TCP client to telegrams sent to converters software. Responses on these telegrams are returned on open TCP connection.



Connection is established with **TCP** protocol on port **2000**.

Bacnet implementation

M-bus	Bacnet
Value from telegram	AnalogInput
Manual M-bus read	BinaryValue
State of last read	AnalogInput
M-bus command	AnalogValue

Properties:

- objectName
- objectType
- presentValue
- statusFlags
- outOfService
- covIncrement
- priorityArray
- relinquishDefault
- units

Values of state point of M-bus device

- **0** - OK
- **1** - No response
- **2** - Failed to open port
- **3** - CRC error
- **4** - Failed to decode telegram
- Writing any value through Bacnet starts manual reading of device

Bacnet point of M-bus command

Written value will be used as M-bus address when command is sent to M-Bus.

Bacnet point for manual devices reading

Writing any value will start manual reading of all devices.

Driver settings

♥ Drivers settings

Communication speed:

Transfer speed of local port.

COM port:

Selection of local COM port.

Manual reading - point name:

Name of Bacnet point to start devices reading. Reading starts after writing any value to this Bacnet point.

Status of master M-Bus connection:

Displays status of master M-Bus connection.

Bacnet IP settings

Bacnet BBMD

B-Port settings

C-Bus settings

M-Bus settings

Communication speed:

2400

▼

COM port:

bbb RS-232 DB9 [/dev/ttyO1]

▼

Manual read Bacnet point name:

mbus_read_all

Master client: not connected

Disconnect master client

Virtual COM ports

Selection	IP address	Port	Connection type	OK
192.168.0.202	192.168.0.202	2,000	TPC	☐
a110	10.0.1.145	2,000	TPC	☐

+ Virtual

-

i

Save settings

Undo

M-Bus functions of converter are blocked while connection is active.

Disconnect master client

Disconnects master client.

Virtual COM ports

Virtual ports manager.

Button	Description
	Save settings
	Undo
	Add virtual COM port

Button	Description
	Delete selected
	Check availability of virtual ports

Only TCP connection is supported currently.

M-bus devices settings

M-Bus

Configure M-Bus devices

M-Bus device profiles

M-bus devices configuration

M-Bus commands configuration

M-Bus TCP Proxy

Baud rate

2400

COM port selection:

Primary address

254

Timeout [s]

1

end_nke

req_ud2

Slave select

Change primary address

Change secondary address

Change baud rate

Received

Primary address

Secondary address

Manufacturer model

Medium

Log

MBAD48

Port configuration

Transfer speed Currently set transfer speed of local M-Bus converter. Changes

are applied immediately. Warning!
Transfer speed also affects reading algorithm of M-bus/Bacnet driver.

Select COM port

Selection of used port for devices configuration

Prenosová rýchlosť

2400

Výber COM portu:

bbb RS-232 DB9 [/dev/ttyO1]

Commands sending

Primary address

Primary address of configured device:

Primárna adresa

Timeout [s]

snd_nke

req_ud2

Slave select

Zmeniť primárnu adresu

Zmeniť sekundárnu adresu

Zmeniť prenosovú rýchlosť

- **254** - command for all devices (broadcast)
- **253** - command for secondary addressed device through **Slave select**

snd_nke

Sends telegram snd_nke

req_ud2

Sends telegram req_ud2

Slave select

Select device with secondary address

Change primary address

Changes primary address of device

Change secondary address

Changes secondary address of device

Change transfer speed

Changes transfer speed

Decoded req_ud2 response

In this part will be displayed decoded response to req_ud2 telegram.

Prijaté

Primárna adresa

Sekundárna adresa

Kód výrobcu

Médium

M-bus device profiles

Profile is template configuration for converting M-Bus telegrams to Bacnet points.

M-Bus

Configure M-Bus devicesM-Bus device profilesM-bus devices configurationM-Bus commands configurationM-Bus TCP Proxy

Profile name
INFOCAL-5
PadPulz
ista-SensonicII

➕➖⌂↺⌂↻

Bacnet object name: PadPulz
REQ_UD2: 0x7B
Timeout [s]: 2
Description:
Commentary:

⌂↻

Telegram	ID	Object name	VIF	DIF
0	0	@0EnergyWh	00	0c
0	1	@1TimPoint	8d	04
0	2	@2TimPoint	6c	42
0	3	@3EnergyWh	00	4c
0	4	@4TimPoint	ec7e	42

➕➖⌂↺⌂↻

Bacnet object name: @0EnergyWh
Bacnet units: NO_UNITS
Telegram number: 0
Position in telegram: 0
VIF+VIFE: 00
DIF+DIFE: 0c
Search by: VIF
Function 1: Off
Value 1: 0
Function 2: Off
Value 2: 0

⌂↻

Telegram data

Telegram #0:
68 2f 2f 68 05 72 01 86 11 02 ac 48 41 00 d3 00 00 00 0c 00 89 58 06
01 04 8d ac 07 f2 11 42 6c df 1c 4c 00 97 41 06 01 42 ec 7e ff 1c 0f c0 01
01 0c b4 16

Editor for M-bus device profiles

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In top part of the screen is located list of current profiles.

Profile name

@infocal5

@padpulz

@ista_SensonicII

+

+

M-Bus

-







Button	Description
	Create profile
	Create profile from M-Bus device
	Delete selected profiles

Button	Description
	Save profile settings.  Warning, only this option saves changes permanently to file. Other save options will save changes in memory. Remember to use this option at the end of your work!
	Undo
	Test profile on M-Bus device

Editor for M-bus device profile

Bacnet object name:

Name of M-Bus status point on Bacnet
Symbol @ will be replaced with given text on profile upload to M-Bus read configuration.

REQ_UD2:

“C Field” of sent telegram.

Timeout [s]:

Telegram reading timeout in seconds.

Data from TCP converters will be processed after time limit. M-bus device needs to send all data or CRC errors can occur.

Description:

Notes:

User description and notes.

Bacnet object name:

REQ_UD2: 

Timeout [s]:

Description:

Commentary:

 

Telegram	ID	Object name	VIF	DIF
0	0	@0EnergymWh	00	0c
0	1	@1TimPoint	6d	04
0	2	@2TimPoint	6c	42
0	3	@3EnergymWh	00	4c
0	4	@4TimPoint	ec7e	42

   

Button	Description
	Save settings
	Undo

List of telegram entries

These entries are exported as Bacnet points

Button	Description
	Add entry
	Delete selected entries
	Save entries settings
	Undo

M-Bus telegram records editor

Bacnet object name:

Name of M-Bus point on Bacnet.
Symbol @ will be replaced with given text on profile upload to M-Bus read configuration.

Bacnet units:

Units accessible through Bacnet

Telegram number:

Position in telegram:

Informative value on automatic read from M-Bus device

VIF+VIFE:

VIF+VIFE value

DIF+DIFE:

DIF+DIFE value

Search by:

Entry in telegram is searched by VIF+VIFE, or by VIF+VIFE and at the same time by DIF+DIFE. You can find more informations about structure of M-Bus telegram [here](#).

Mathematical functions and their values

Allows modification of decoded values before they are written to Bacnet point.

Bacnet object name:	@0EnergymWh
Bacnet units:	NO_UNITS ▼
Telegram number:	0
Position in telegram:	0
VIF+VIFE:	00
DIF+DIFE:	0c
Search by:	VIF ▼
Function 1:	Off ▼
Value 1:	0
Function 2:	Off ▼
Value 2:	0
	 

Telegram data

Telegram #0:
68 2f 2f 68 08 05 72 01 86 11 02 ac 48 41 00 d3 00 00 00 0c 00 89 58 06
01 04 6d ac 07 12 11 42 6c df 1c 4c 00 97 41 06 01 42 ec 7e ff 1c 0f c0 01
01 0c b4 16

Button	Description
	Save settings
	Undo

Telegram data

Hexadecimal representation of recieved telegram on automatic profile generation.

Generate profile from M-Bus device

M-Bus

Load profile from M-Bus device

Read rate: 2400

COM port selection: Spsrcdn

Timeout (s): 2

Primary address: 10

req_ud2: 0x78

Result: OK

Received telegram count: 1

Decoded points count: 38

OK

CANCEL

Telegram	ID	Object name	SP	DP	Value
0	0	@0UnkownDP	78	0x	61,148,708
0	1	@1TmPout	8d	0x	4,121,817
0	2	@2Vole3	15	0x	6,108.4
0	3	@3Vole3	15	44	4,544.6
0	4	@4Vole3	15	84d1	5,671.1
0	5	@5Vole3	15	8410	0
0	6	@6Vole3	15	u418	0
0	7	@7Vole3	15	8471	0
0	8	@8EnergyWh	85	0x	31,884
0	9	@9EnergyWh	85	44	22,353
0	10	@10EnergyWh	85	84d1	35,987
0	11	@11EnergyWh	85	8410	0
0	12	@12EnergyWh	85	u418	0
0	13	@13EnergyWh	85	8471	0
0	14	@14TmPout	8d	42	1,231

Button	Description
	Read M-Bus device on specified COM port and req_ud2
OK	Generate profile from received data
CANCEL	Cancel profile generation

Test profile on M-Bus device

Test M-Bus device profile

Read rate: 2400

COM port selection: Spsrcdn

Timeout (s): 2

Primary address: 10

req_ud2: 0x78

Result: OK

Received telegram count: 1

Decoded points count: 38

OK

Object name	SP	DP	Found	Value
@0UnkownDP	78	0x		61,148,708
@1TmPout	8d	0x		4,121,821
@2Vole3	15	0x		6,108.4
@3Vole3	15	44		5,108.4
@4Vole3	15	84d1		6,108.4
@5Vole3	15	8418		6,108.4
@6Vole3	15	u418		6,108.4
@7Vole3	15	8471		6,108.4
@8EnergyWh	85	0x		31,884
@9EnergyWh	85	44		31,884
@10EnergyWh	85	84d1		31,884
@11EnergyWh	85	8418		31,884
@12EnergyWh	85	u418		31,884
@13EnergyWh	85	8471		31,884
@14TmPout	8d	42		1,231

Button	Description
	Test profile on specified COM port and req_ud2
OK	Close window

M-Bus device settings

M-Bus

Configure M-Bus devices

M-Bus device profiles

M-bus devices configuration

M-Bus commands configuration

M-Bus TCP Proxy

Device name	A	Enabled
INFOCAL-5	1	
Merac1	1	

Primary address:

1

Bacnet object name:

INFOCAL-5

Reading interval [min]:

1

☒ Enable reading:

REQ_UD2:

0x7B

COM port selection:

bbb RS-232 DB9

Timeout [s]:

1

Object name	VIF	DIF
XXX0UnrecVIF	fd11	0c
XXX1EnergyMJ	0e	0c
XXX2VolTm3	13	0c
XXX3PowerW	2d	0c
XXX4Vflowm3h	3c	0c
XXX5FlowtempC	5a	0b
XXX6RetTempC	5e	0b
XXX7TmpDiffC	61	0b

Bacnet object name:

XXX1EnergyMJ

Bacnet units:

NO_UNITS

VIF+VIFE:

0e

DIF+DIFE:

0c

Search by:

VIF

Function 1:

Off

Value 1:

0

Function 2:

Off

Value 2:

0

M-Bus devices editor

In top part of the screen is located list of currently configured devices.

Device name	A	Enabled
INFOCAL-5	1	
Merac1	1	

Button	Description
	Create M-Bus device

Button	Description
	Create M-Bus device from profile
	Update selected device from profile
	Remove selected devices
	Save devices settings. Warning, only this option saves changes permanently to file. Other save options will save changes in memory. Remember to use this option at the end of your work!
	Undo
	Test current settings on M-Bus device.

M-Bus device editor

Primary address:

Primary address of M-Bus device

Bacnet object name:

Name of M-Bus status point in Bacnet

REQ_UD2:

“C Field” of send telegram.

COM port selection:

Port of connected device

Timeout [s]:

Telegram reading time limit in seconds. Data from TCP converters will be processed after time limit. M-bus device needs to send all data or CRC errors can occur.

Primary address:

Bacnet object name:

Reading interval [min]:

☒ Enable reading:

REQ_UD2:

▼

COM port selection:

▼

Timeout [s]:





Object name	VIF	DIF
XXX0UnrecVIF	fd11	0c
XXX1EnergyMJ	0e	0c
XXX2VolTm3	13	0c
XXX3PowerW	2d	0c
XXX4Vflowm3h	3c	0c
XXX5FlowtempC	5a	0b
XXX6RetTempC	5e	0b
XXX7TmpDiffC	61	0b



Button	Description
	Save settings
	Undo

List of telegram entries

These entries are exported as Bacnet points

Button	Description
	Add entry
	Delete selected entries
	Save entries settings
	Undo

M-Bus telegram entry editor

Name of Bacnet point:

Name of M-Bus entry on Bacnet.

Bacnet units:

Units accessible from Bacnet

VIF+VIFE:

VIF+VIFE value

DIF+DIFE:

DIF+DIFE value

Search by:

Entry in telegram is searched by VIF+VIFE, or by VIF+VIFE and at the same time by DIF+DIFE. You can find more informations about structure of M-Bus telegram [here](#).

Mathematical functions and their values

Allows modification of decoded values before they are written to Bacnet point.

Bacnet object name:

XXX0UnrecVIF

Bacnet units:

NO_UNITS

VIF+VIFE:

fd11

DIF+DIFE:

0c

Search by:

VIF

Function 1:

Off

Value 1:

0

Function 2:

Off

Value 2:

0



Button	Description
	Save settings
	Undo

M-bus commands settings

M-Bus

Configure M-Bus devices

M-Bus device profiles

M-bus devices configuration

M-Bus commands configuration

M-Bus TCP Proxy

Device name	Description	Enabled
Padpulz_freeze		☒

Bacnet object name:

Padpulz_freeze

☒ Enabled

COM port selection:

bbb RS-232 DB9

Timeout [s]:

2

Command data:

<0x68><len><len><0x68>

<C>

0x53

<Adr>

<Cl>

0x54

<data>

<crc><0x16>

M-bus commands editor

In top part of the screen is located list of current commands.

Device name	Description	Enabled
Padpulz_freeze		

Button	Description
	Add M-Bus command
	Add predefined command
Delete selected commands	
	Save commands configuration
	Undo

M-bus command editor

Bacnet object name:

Name of the Bacnet object

Enabled

Exports command to Bacnet

COM port:

COM port on which will be command sent

Timeout [s]

Response time limit, used to clear RX buffer

<C>

Telegrams “C-field”

<CI>

Telegrams “CI-field”

<DATA>

Hexadecimal representation of telegrams data

Telegram address will be included from defined value in Bacnet object. Length and CRC will be calculated before telegram is sent.

Button	Description
	Save settings
	Undo

Bacnet object name:

☒ Enabled

COM port selection:

bbb RS-232 DB9

▼

Timeout [s]:

Command data:

<0x68><len><len><0x68>

<C>

<Adr>

<CI>

<data>

<crc><0x16>



