DALI 4Net

Manual Addition

Central Control Device

Central Control Device for 4 DALI-lines

DALI 4Net - Modbus TCP – Examples for DALI Commands

This document is an additional information and example collection for the Modbus TCP interface of the DALI 4Net. The datasheet and operating manual can be found here:
Datasheet: https://www.lunatone.com/wp-content/uploads/2018/03/22176666_DALI_4Net_EN_D0053.pdf
Manual: https://www.lunatone.com/wp-content/uploads/2018/03/22176666_DALI4Net_Manual_EN_M0002.pdf

Content:

1. Overview DALI4Net - Modbus TCP – DALI Communication

Modbus TCP/IP is a type of the serial Modbus protocol for TCP/IP networks using port 502. The Modbus standard provides several functions for data exchange.

Supported Function codes:

Function Name	Function Code	Description
Read Multiple Holding Registers	03	Read Data Blocks from Device
Write Multiple Holding Registers	16	Write Data Blocks to Device
Read/Write Holding Registers	23	First Write, then Read from Specific Address, **function used to send DALI commands**

With the help of the mentioned functions Modbus registers can be accessed and data can be exchanged between a Modbus client and the server.
In the following document the examples for the registers 100 and 101 will be covered. For other registers please refer to the general DALI4Net Manual

Register	Name	Length (Word)	Read/Write	Function
100	Write Dali Command	6	W	Write Dali Command (100&101 used with FC 23)
101	Read Dali Command	5	R	Read Answer from previously sent Command

1.1 Unit ID to set the Line or Zone

The Unit Identifier UID is set bitwise to address either a DALI Line or Zone:

Bit	7	6	5	4	3	2	1	0
Description	*Zones 1-15*				*DALI 3*	*DALI 2*	*DALI 1*	*DALI 0*

For example: 0b00000001 = Unit ID 1 = Dali Line 0
0b00000100 = Unit ID 4 = Dali Line 2
0b00001010 = Unit ID 10 = Dali Lines 1 and 3
0b11000000 = Unit ID 192 = Dali Zone 12

When using Zones in the Unit ID to send a DALI command as in "***Error! Reference source not found.*** *Register 100 – Write DALI-Command"*, only DALI16 commands are allowed. Other DALI commands (DALI24, eDALI) cannot be used in combination with Zones.

1.2 Register 100 – Write DALI-Command

For direct access to the DALI-lines Modbus Register 100 and 101 are used.
For the **example send MAX to A0 on Line 0**:
Send to IP of the DALI4Net,
Set UNIT ID 1 for DALI Line 0
Function code FC23: to write/read multiple registers -
number of registers to write: 6
number of registers to read: 5
Start from Register: 100 (Base address 0)

Byte:	0	1	2	3	4	5	6	7	8	9	10
Hex:	0x12	0x00	0x00	0x03	0x00	0x00	0x01	0x05	0x00	0x00	0x00

Write Dali Command			Example RECALL MAX A0	
Byte	Name	Description	Value	Meaning
0	CmdByte	Command Byte = 0x12 always	0x12	Required
1	Sequence number	Command Sequence number (will be sent back)	0x01	sequence nr. set to 1
2	Control	Command Control byte Bit 7: unused, set to 0 Bit 6: if set no data is sent out on the DALI line (used to test connection status) Bit 5: send twice, cmd will be sent twice on DALI-line (required for some DALI commands) Bit 4: Send DTR before DALI command (only with DALI-16 and eDALI commands) Bit 3: Send DALI Device Type before DALI command (only with DALI-16 and eDALI commands) Bit 2: Send “Set Actual Level to DTR” before DALI command (only with DALI-16 and eDALI commands, not to be used with DALI-16 DAP commands)	0x00	do not send twice, no DTR set, no device type before command
3	Mode	Command Mode Byte Value 0,1: not used 2: send DALI answer (8Bit, DATA_LO) 3: send DALI (16 Bit, DATA_MID, DATA_LO) 4: send eDALI (25Bit, DATA_HI, DATA_MID, DATA_LO) 5: reserved 6: send 3Byte DALI (24Bit, DATA_HI, DATA_MID, DATA_LO) 7: reserved 8: reserved 12: reserved	0x03	Send DALI 16bit command
4	Reserved		0x00	reserved
5	Dali High	Highest Dali Byte (DATA_HI)	0x00	HIGH byte not needed for 16bit DALI
6	Dali Mid	Mid Dali Byte (DATA_MI)	0x01	DALI Frame containing info: A0 and Command “Recall MAX”
7	Dali Low	Low Dali Byte (DATA_LO)	0x05	
8	DTR	Value to be set to DTR	0x00	No DTR set
9	Priority	Priority for DALI command (not applicable if control bit 2 or control bit 4 are set)	0x00	No priority set
10	Device type	Device type to be sent	0x00	No device type to declare

Received 8bit answer to sending DALI command:

Byte:	0	1	2	3	4	5	6	7	8	9
Hex:	0x12	0x81	0x00	0x00	0x00	0x00	0x00	0x01	0x00	0x00

1.3 Register 101 – Read DALI Answer

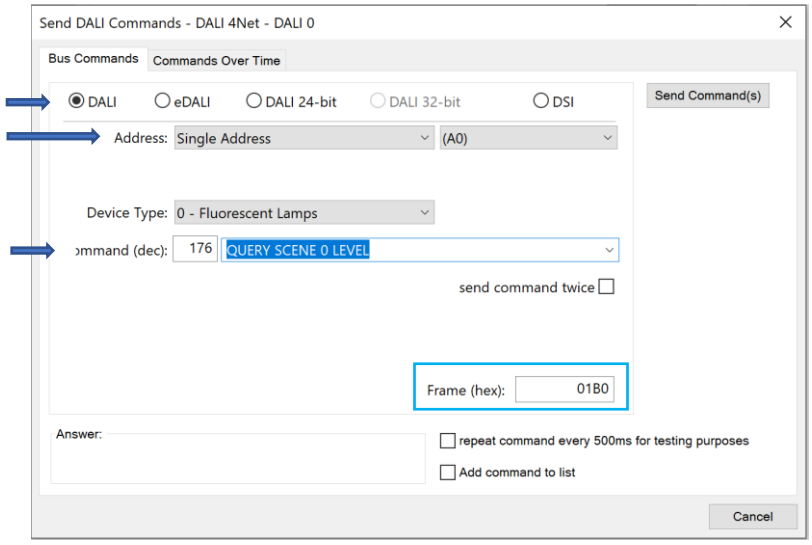
A DALI Answer can also be read from Register 101 – read length 5 Words

Read DALI Command			Example received Answer From section 1.2 Write/Read Recall Max A0	
Byte	Name	Description	Value	Meaning
0	Cmd Byte	Command Byte = 0x12 always	0x12	mandatory
1	Status	Command Status byte: High nibble: reserved (value = 8) Low nibble: status value = 1: DALI answer =”NO” value = 2: DALI 8bit data value = 7: Error/Info, if set: Collision / DALI answer = ”Yes”: DATA_LO=1; DALI-line short circuit: DATA_LO=2;	0x81	Low nibble: value =1 Answer is “NO” (as no answers are received to control commands)
2	Reserved	Reserved	0x00	reserved
3	Reserved	Reserved	0x00	reserved
4	Reserved	Reserved	0x00	reserved
5	Answer	DALI_LO (answer to previous command)	0x00	
6	Reserved	Reserved	0x00	Reserved
7	Sequence number	Command sequence number same as previously sent	0x01	answer to command sequence nr 1
8	Reserved	Reserved	0x12	reserved
9	Reserved	Reserved	0x01	reserved

2. Looking up DALI Frames

Selection of Frame: DALI HI, DALI MID, DALI LO:

For Information on the DALI Commands to send – please refer to the DALI Cockpit DALI Command Tool (Menu DALI Bus > Send DALI Commands…).



By selecting the needed options (type: (DALI, eDALI, DALI-2), address, and command) the correct data can be read from the frame (hex).

For most common DALI Frames see **10. Table of common DALI Frames**

3. Example: Send DALI Control Command

Scene 0 to group 0

Type	Hex Data	Address	Command
DALI16 IAP	81 10	G0	GOTO SCENE 0

Send to IP of the DALI4Net,
Set UNIT ID 1 for DALI Line 0
Function code FC23: to write/read multiple registers -
number of registers to write: 6
number of registers to read: 5
Start from Register: 100
DALI command: DALI Scene 0 - Group 0 (DALI frame: 0x8110)

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	01	00	03	00	00	**81**	**10**	00	00	00	00
comment	Command Byte 0x12 always	sequence number (set to 2)	Control set to 0	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type (not used here)	Res.

Received 8bit answer to sending DALI command:

Byte:	0	1	2	3	4	5	6	7	8	9
Hex:	0x12	0x81	0x00	0x00	0x00	0x00	0x00	0x01	0x00	0x00

Status: "No Answer" → frame sent on bus successfully , no error

4. Example: Query DALI Status

Sending Query Status and reading the response

Type	Hex Data	Address	Command
DALI16 Query	01 90	A0	QUERY STATUS
DALI8 Answer	04		= 4 (0x04)

Send to IP of the DALI4Net,
Set UNIT ID 2 for DALI Line 1
Function code FC23: to write/read multiple registers -
number of registers to write: 6
number of registers to read: 5
Start from Register: 100
DALI command: DALI Query Status - Address 0 (DALI frame: 0x0190)

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	03	00	03	00	00	**01**	**90**	00	00	00	00
comment	command byte 0x12 always	sequence number (set to 3)	control set to 0	mode set to DALI 16 bit	res.	DALI High (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type (not used here)	res.

Response:

Byte:	0	1	2	3	4	5	6	7	8	9
Hex:	0x12	0x82	0x00	0x00	0x00	0x00	0x04	0x03	0x12	0x03

Interpretation: Status 0x82, low nibble value 2: DALI 8 bit Data
→DALI 8bit Data : 0x04 according to DALI Status info below: no failure/error, lamp is on, no fade running, addressed (address is not mask),…

DALI Status Information

Bit	Description	Value	Answer 0x04
0	Control Gear Failure	"1" = Yes	0
1	Lamp Failure	"1" = Yes	0
2	Lamp On	"1" = Yes	1
3	Limit Error	"1" = Yes	0
4	Fade Running	"1" = Yes	0
5	Reset State	"1" = Yes	0
6	Short Address is MASK	"1" = Yes	0
7	Power Cycle Seen	"1" = Yes	0

5. Example: Send RGB Colour Commands

Sending a DALI DT8 colour command requires several commands: sending the value for each colour and then activating the set colour.

Type	Hex Data	Address	Command
DALI16 Special	A3 00	*	DATA TRANSFER REGISTER= 0 (0x00)
DALI16 Special	C3 00	*	DATA TRANSFER REGISTER 1= 0 (0x00)
DALI16 Special	C5 FE	*	DATA TRANSFER REGISTER 2= 254 (0xFE)
DALI16 Special	C1 08	*	ENABLE DEVICE TYPE 8
DALI16 AppExt D8	09 EB	A4	SET TEMPORARY RGB DIMLEVEL
DALI16 Special	C1 08	*	ENABLE DEVICE TYPE 8
DALI16 AppExt D8	09 E2	A4	ACTIVATE

Since 3 DTRs (0,1 and 2) need to be written it cannot be included into one registry write.
(In other applications (e.g. set fade time), where only 1 DTR is set, the control byte (byte 2) and DTR data byte (byte 8) could be used to send DTR commands previous to other commands, with one registry write)

In this example the answers between writing are not mentioned, to make sure all commands are sent to the DALI bus and to capture errors the answers should be evaluated before sending the next command.

Writing register DTR like DALI commands with DALI DTR command – for blue (A300 (red=0), C300 (green=0), C5FE (blue=254))

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
comment	Command Byte 0x12 always	sequence number (set to 1)	Control set to 0	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type (not used here)	Res.

set value red: DTR 0 to 0x00

Hex:	12	01	00	03	00	00	**A3**	**00**	00	00	00	00

set value green: DTR1 to 0x00

Hex:	12	02	00	03	00	00	**C3**	**00**	00	00	00	00

set value blue: DTR2 to 0xFE

Hex:	12	03	00	03	00	00	**C5**	**FE**	00	00	00	00

Writing register Device Type 8 + DALI Data = 0x09EB for Set Temporary Dim Level Address 4

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	04	08	03	00	00	**09**	**EB**	00	00	08	00
comment	Command Byte 0x12 always	sequence number (set to 4)	Control use to send Device Type	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type = 8	Res.

Writing register Device Type 8 + DALI Data = 0x09E2 for Activate to Address 4

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	05	08	03	00	00	**09**	**E2**	00	00	08	00
comment	Command Byte 0x12 always	sequence number (set to 5)	Control use to send Device Type	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type = 8	Res.

6. Example Read Memory Location – Memory Bank 0

Reading a Memory Bank requires several commands – settings the memory bank number to DTR1, setting the entry to read of the memory bank to DTR, sending the query: read memory bank location to address A6

Type	Hex Data	Address	Command
DALI16 Special	C3 00	*	DATA TRANSFER REGISTER 1= 0 (0x00)
DALI16 Special	A3 00	*	DATA TRANSFER REGISTER= 0 (0x00)
DALI16 Query	0D C5	A6	READ MEMORY LOCATION
DALI8 Answer	11		= 17 (0x11)
DALI16 Query	0D C5	A6	READ MEMORY LOCATION
DALI8 Answer	D3		= 211 (0xD3)

1st send command: DTR1 set to memory bank 0 → DTR1 = 0

2nd send command: DTR to first entry → DTR = 0

3rd send “Read Memory location”: 0x05C5

4th continue reading following memory bank entries with “Read Memory location”

DTR command can be included with the following ModBus command:

setting bit 4 of the control byte to send DTR before DALI command

setting byte 8 to the DTR data 0x00

Writing register DTR1 = 0 to set to memory bank 0

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	01	00	03	00	00	**C3**	**00**	00	00	00	00
comment	Command Byte 0x12 always	sequence number (set to 1)	Control set to 0	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type (not used here)	Res.

Writing register DTR = 0 + Read memory Location from address A6 (= 0x0DC5)

Hex:	12	02	10	03	00	00	**0D**	**C5**	**00**	00	00	00
comment	Command Byte 0x12 always	sequence number (set to 2)	Control bit 4 set to use DTR	Mode set to DALI 16 bit	Res.	DALI Hight (unused for DALI 16bit)	**DALI Mid**	**DALI Low**	DTR set to 00	Priority (not used here)	Device Type (not used here)	Res.

Response:	0x1282 0x0000 0x**0011** 0x0002 0x0000

Sequential entries of the memory bank can be read by continuing “read memory location” queries – entry number is automatically incremented with each read (DALI standard)

Read Next Entry:

Send	0x1203 0x0003 0x00 **0x0DC5** 0x00 0x00	Read Memory Location A6
Response:	0x1282 0x0000 0x**00D3** 0x0003 0x0000	

7. Example Query DALI-2 Instance

To query a DALI instance the DALI-2 device address and the instance number need to be known. To query the values the commands “query input” and “query input value latch” (in case the value is longer than 1byte) are used.

Query Sensor Values/ Pushbuttons via Instances:

1. Query Input Value
2. Read Answer
3. Query Input Value latch (in case of light sensor)
4. Read Answer
5. Evaluate Answer

The evaluation of the response is dependent on the queried instance.

DALI command: DALI Query Input Value- Address 0^2 Instance nr. 0 (DALI frame: 0x01018C)

WORD	0		1		2		3		4		5	
Byte	0	1	2	3	4	5	6	7	8	9	10	11
Hex:	12	05	00	06	00	**01**	**01**	**8C**	00	00	00	00
comment	command byte 0x12 always	sequence number (set to 5)	control set to 0	mode set to DALI 24 bit	res.	**DALI High**	**DALI Mid**	**DALI Low**	DTR (not used here)	Priority (not used here)	Device Type (not used here)	res.

Response:

Byte:	0	1	2	3	4	5	6	7	8	9
Hex:	0x12	0x82	0x00	0x00	0x00	0x00	0xFF	0x05	0x12	0x03

Interpretation: Status 0x82, low nibble value 2: DALI 8 bit Data
→DALI 8bit Data : 0xFF according to instance type different meaning

DALI-2 MC Pushbutton (instance type 1): 0x00 button is released, 0xFF while pressed

DALI-2 CS Motion Sensor (instance type 2): 0x00 no motion , 0xAA occupied (within hold time of last motion), 0xFF motion.

DALI-2 CS light sensor (instance type 0): Input Value + Input Value Latch to be evaluated
e.g. Input value latch: 0x15, input value 0xAE → bin: 0001 0101 1010 1110
0-2046lux - 11bit, resolution: 1lux
in decimal: 1454 lux

See device datasheets for details of evaluation of response

Table of “Query input value” DALI Frames for different instance numbers and addresses:

Command	Address	Modbus Frame to send
Query Input Value	A0[2] instance Nr0	0x1200 0x0006 0x0001 **0x008C** 0x0000 0x0000
	A1[2] instance Nr0	0x1200 0x0006 0x0003 **0x008C** 0x0000 0x0000
	A2[2] instance Nr0	0x1200 0x0006 0x0005 **0x008C** 0x0000 0x0000
	…	
	A62[2] instance Nr0	0x1200 0x0006 0x007D **0x008C** 0x0000 0x0000
	A63[2] instance Nr0	0x1200 0x0006 0x007F **0x008C** 0x0000 0x0000
	A0[2] instance Nr1	0x1200 0x0006 0x0001 **0x018C** 0x0000 0x0000
	…	
	A0[2] instance Nr2	0x1200 0x0006 0x0005 **0x028C** 0x0000 0x0000
	…	
Query Input Value Latch	A0[2] instance Nr0	0x1200 0x0006 0x0001 **0x008D** 0x0000 0x0000
	A1[2] instance Nr0	0x1200 0x0006 0x0003 **0x008D** 0x0000 0x0000
	…	

8. Python Example Code

Setting up the connection

Host: 192.168.0.98 → IP Address of the DALI4Net - Port: 502
Unit id defines which DALI Line or zone is addressed - it is set bitwise to address DALI Line or Zone:

Bit:	7	6	5	4	3	2	1	0
	Zones 1-15				*DALI 3*	*DALI 2*	*DALI 1*	*DALI 0*

Set up connection: (DALI 4 Net with ip 192.168.0.98, addressing line0)

```
from pyModbusTCP.client import ModbusClient

client = ModbusClient(host='192.168.0.98', port=502)
client.connect()
```

Send DALI Control Command Scene 0 to group 0 as in "3. Example: Send DALI Control Command"

Type	Hex Data	Address	Command
DALI16 IAP	81 10	G0	GOTO SCENE 0

```
arguments = {
    'read_address':    101,
    'read_count':      5,
    'write_address':   100,
}

# write to group 0, line 0 (unit id = 1) - scene 0
write_registers = [0x1202, 0x0003, 0x0000, 0x8110, 0x0000, 0x0000]
unit_id= 0x01
answer = client.readwrite_registers(values=write_registers, slave=unit_id, **arguments)
print([hex(i) for i in answer.registers])
```

Query DALI Status A0 as in "4. Example: Query DALI Status"

Type	Hex Data	Address	Command
DALI16 Query	01 90	A0	QUERY STATUS
DALI8 Answer	04		= 4 (0x04)

```
arguments = {
    'read_address':    101,
    'read_count':      5,
    'write_address':   100,
}
#query status line 1 (unit id = 2) address 0
write_registers = [0x1203, 0x0003, 0x0000, 0x0190, 0x0000, 0x0000]
```



```
unit_id= 0x02
answer = client.readwrite_registers(values= write_registers, slave=unit_id, **arguments)
print([hex(i) for i in answer.registers])
```

Set RGB Colour values as in “5. Example: Send RGB Colour Commands”

In these examples the answers between writing are not evaluated, to make sure all commands are received and sent to the DALI bus and to capture errors the answers should be evaluated before sending the next command.

```
unit_id= 0x01
arguments = {
    'read_address':    101,
    'read_count':      5,
    'write_address':   100,
    'slave':        unit_id,
}
# write to line 1, address 4, DT8 colour command blue:

# data transfer register=0 0x00 (red)
client.readwrite_registers(values=[0x1201, 0x0003, 0x0000, 0xA300, 0x0000, 0x0000], **arguments)

# data transfer register=1 0x00 (green)
client.readwrite_registers(values=[0x1202, 0x0003, 0x0000, 0xC300, 0x0000, 0x0000], **arguments)

# data transfer register 2= 0xFE (blue)
client.readwrite_registers(values=[0x1203, 0x0003, 0x0000, 0xC5FE, 0x0000, 0x0000], **arguments)

# enable DT8 + Set temp dim level
client.readwrite_registers(values=[0x1204, 0x0803, 0x0000, 0x09EB, 0x0000, 0x0800], **arguments)

# enable DT8 + activate command
client.readwrite_registers(values=[0x1205, 0x0803, 0x0000, 0x09E2, 0x0000, 0x0800], **arguments)
```

Close Client Connection

After reading and sending all required data close the client connection.

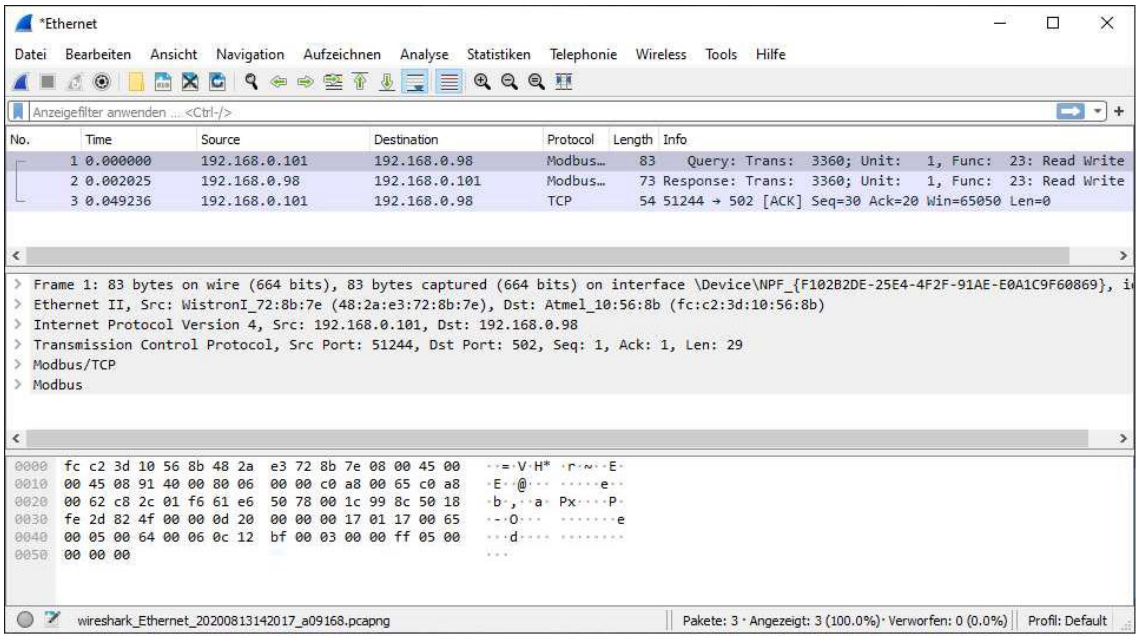
```
client.close
```

9. Example – Wireshark

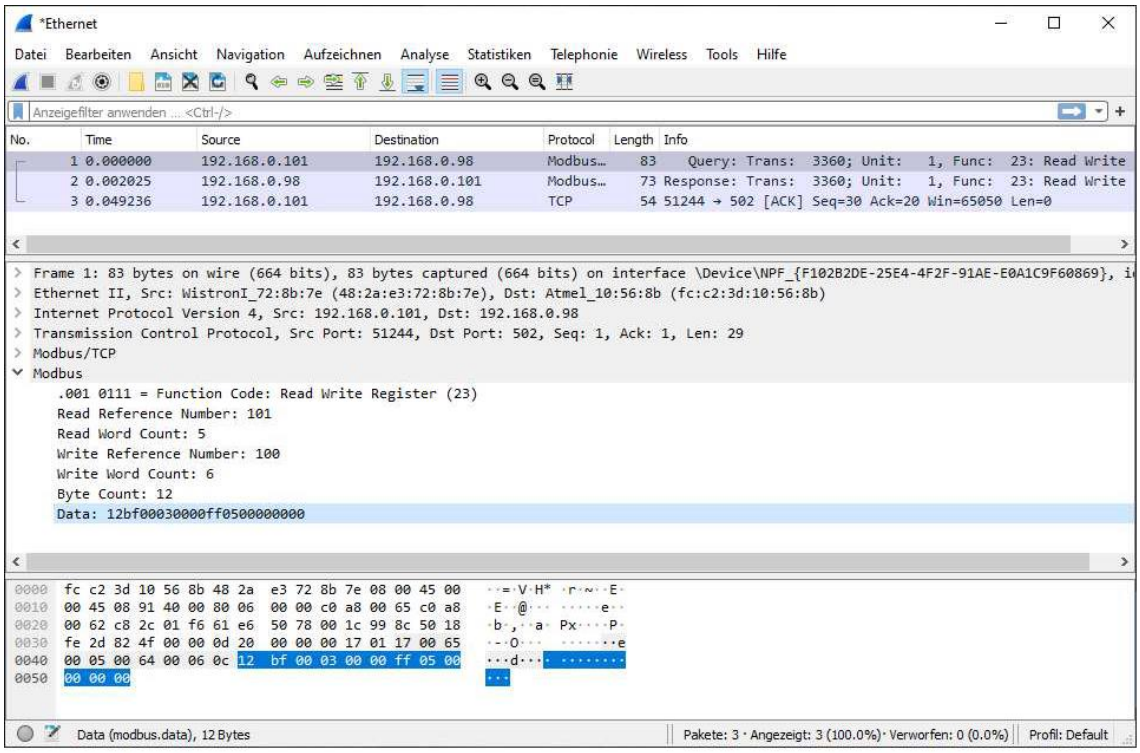
The examples below were made with the program Wireshark, to analyse the communication on the Modbus layer.

DALI command „RECALL MAX“ to Broadcast on line 0

Whole Frame:



Data:

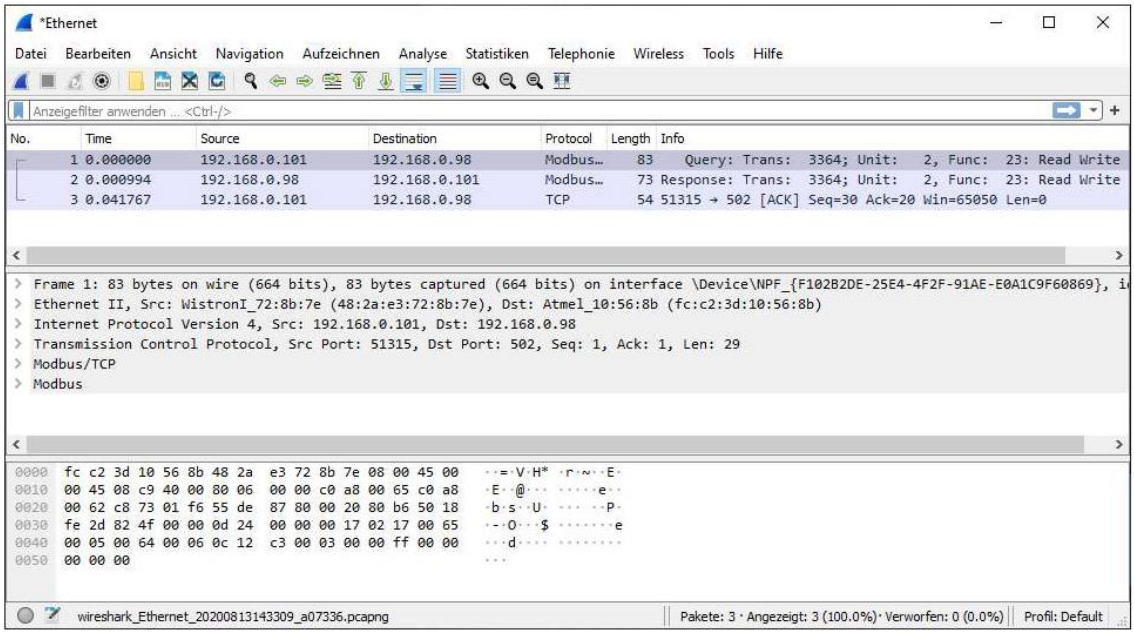


DALI Frame:

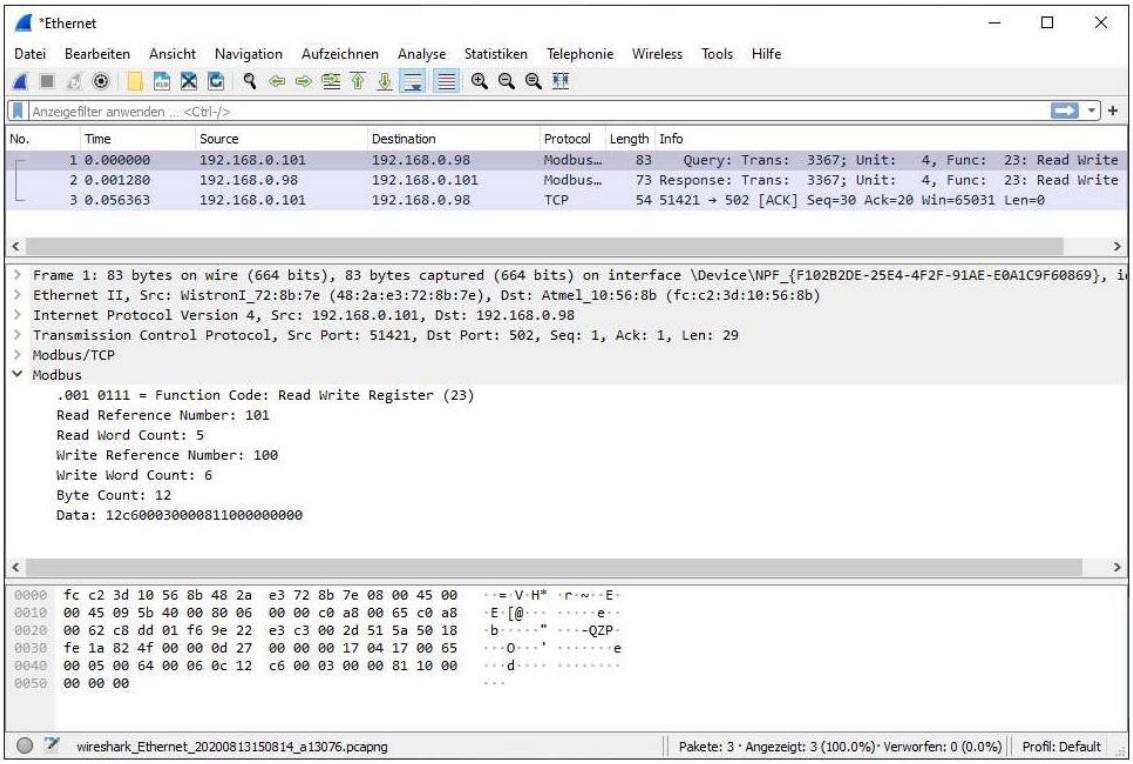
```
0000  fc c2 3d 10 56 8b 48 2a  e3 72 8b 7e 08 00 45 00   ··=·V·H* ·r·~··E·
0010  00 45 08 91 40 00 80 06  00 00 c0 a8 00 65 c0 a8   ·E··@··· ·····e··
0020  00 62 c8 2c 01 f6 61 e6  50 78 00 1c 99 8c 50 18   ·b·,··a· Px····P·
0030  fe 2d 82 4f 00 00 0d 20  00 00 00 17 01 17 00 65   ·-·O··· ·· ·····e
0040  00 05 00 64 00 06 0c 12  bf 00 03 00 00 ff 05 00   ···d···· ·· ·····
0050  00 00 00                                          ···
```

DALI Monitor:

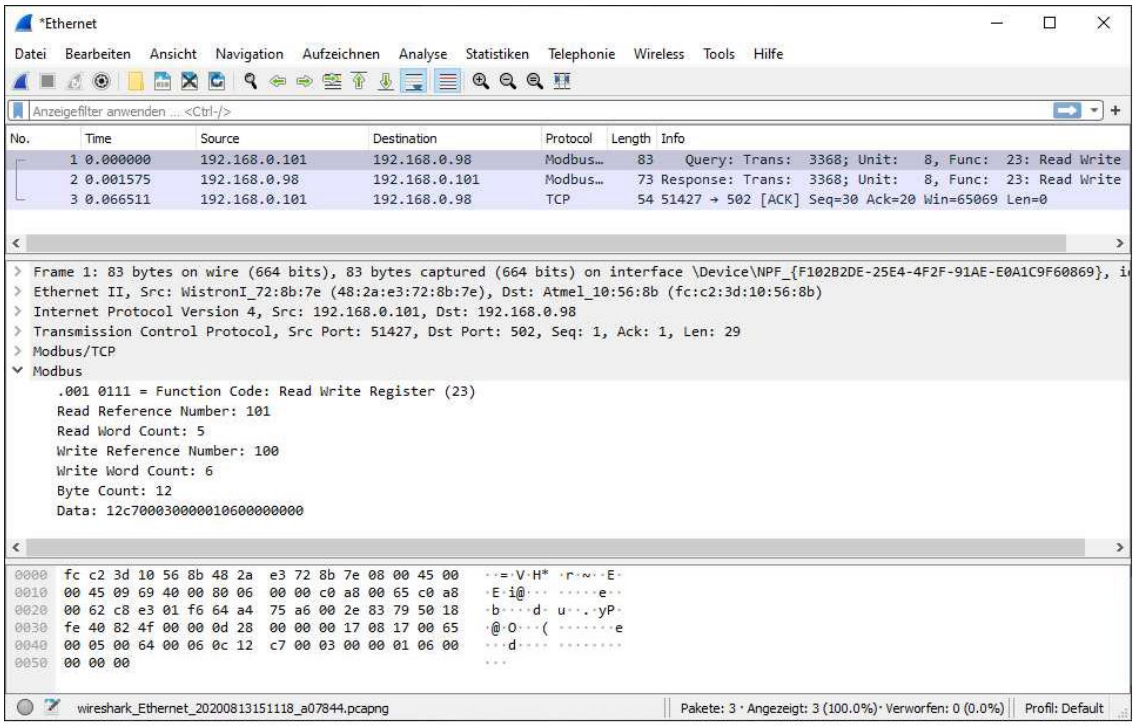
DALI command “OFF” to Broadcast on Line 1



DALI command “GO TO Scene 0” to group 0 on Line 2



DALI command “RECALL MIN LEVEL” to single address A0 on Line 3



10. Table of common DALI Frames

Command	to Address	-->	Register	Words	Modbus Frame to send					
DAP 1%	Broadcast		100	6	0x1201	0x0003	0x0000	**0xFE56**	0x0000	0x0000
	A0		100	6	0x1201	0x0003	0x0000	**0x0056**	0x0000	0x0000
	A1		100	6	0x1201	0x0003	0x0000	**0x0256**	0x0000	0x0000
	…									
	A62		100	6	0x1201	0x0003	0x0000	**0x7C56**	0x0000	0x0000
	A63		100	6	0x1201	0x0003	0x0000	**0x7E56**	0x0000	0x0000
	G0		100	6	0x1201	0x0003	0x0000	**0x8056**	0x0000	0x0000
	G1		100	6	0x1201	0x0003	0x0000	**0x8256**	0x0000	0x0000
	...									
	G14		100	6	0x1201	0x0003	0x0000	**0x9C56**	0x0000	0x0000
	G15		100	6	0x1201	0x0003	0x0000	**0x9E56**	0x0000	0x0000
DAP 50%	Broadcast		100	6	0x1201	0x0003	0x0000	**0xFEE5**	0x0000	0x0000
	A0		100	6	0x1201	0x0003	0x0000	**0x00E5**	0x0000	0x0000
	A1		100	6	0x1201	0x0003	0x0000	**0x02E5**	0x0000	0x0000
	…									
	A62		100	6	0x1201	0x0003	0x0000	**0x7CE5**	0x0000	0x0000
	A63		100	6	0x1201	0x0003	0x0000	**0x7EE5**	0x0000	0x0000
	G0		100	6	0x1201	0x0003	0x0000	**0x80E5**	0x0000	0x0000
	G1		100	6	0x1201	0x0003	0x0000	**0x82E5**	0x0000	0x0000
	...									
	G14		100	6	0x1201	0x0003	0x0000	**0x9CE5**	0x0000	0x0000
	G15		100	6	0x1201	0x0003	0x0000	**0x9EE5**	0x0000	0x0000
DAP 100%	Broadcast		100	6	0x1201	0x0003	0x0000	**0xFEFE**	0x0000	0x0000
	A0		100	6	0x1201	0x0003	0x0000	**0x00FE**	0x0000	0x0000
	A1		100	6	0x1201	0x0003	0x0000	**0x02FE**	0x0000	0x0000
	…									
	A62		100	6	0x1201	0x0003	0x0000	**0x7CFE**	0x0000	0x0000
	A63		100	6	0x1201	0x0003	0x0000	**0x7EFE**	0x0000	0x0000
	G0		100	6	0x1201	0x0003	0x0000	**0x80FE**	0x0000	0x0000
	G1		100	6	0x1201	0x0003	0x0000	**0x82FE**	0x0000	0x0000
	...									
	G14		100	6	0x1201	0x0003	0x0000	**0x9CFE**	0x0000	0x0000
	G15		100	6	0x1201	0x0003	0x0000	**0x9EFE**	0x0000	0x0000
OFF	Broadcast		100	6	0x1201	0x0003	0x0000	**0xFF00**	0x0000	0x0000
	A0		100	6	0x1201	0x0003	0x0000	**0x0100**	0x0000	0x0000
	A1		100	6	0x1201	0x0003	0x0000	**0x0300**	0x0000	0x0000
	…									
	A62		100	6	0x1201	0x0003	0x0000	**0x7D00**	0x0000	0x0000
	A63		100	6	0x1201	0x0003	0x0000	**0x7F00**	0x0000	0x0000
	G0		100	6	0x1201	0x0003	0x0000	**0x8100**	0x0000	0x0000

	G1	100	6	0x1201	0x0003	0x0000	**0x8300**	0x0000	0x0000
	...								
	G14	100	6	0x1201	0x0003	0x0000	**0x9D00**	0x0000	0x0000
	G15	100	6	0x1201	0x0003	0x0000	**0x9F00**	0x0000	0x0000

MAX	Broadcast	100	6	0x1201	0x0003	0x0000	**0xFF05**	0x0000	0x0000
	A0	100	6	0x1201	0x0003	0x0000	**0x0105**	0x0000	0x0000
	A1	100	6	0x1201	0x0003	0x0000	**0x0305**	0x0000	0x0000
	…								
	A62	100	6	0x1201	0x0003	0x0000	**0x7D05**	0x0000	0x0000
	A63	100	6	0x1201	0x0003	0x0000	**0x7F05**	0x0000	0x0000
	G0	100	6	0x1201	0x0003	0x0000	**0x8105**	0x0000	0x0000
	G1	100	6	0x1201	0x0003	0x0000	**0x8305**	0x0000	0x0000
	...								
	G14	100	6	0x1201	0x0003	0x0000	**0x9D05**	0x0000	0x0000
	G15	100	6	0x1201	0x0003	0x0000	**0x9F05**	0x0000	0x0000

MIN	Broadcast	100	6	0x1201	0x0003	0x0000	**0xFF06**	0x0000	0x0000
	A0	100	6	0x1201	0x0003	0x0000	**0x0106**	0x0000	0x0000
	A1	100	6	0x1201	0x0003	0x0000	**0x0306**	0x0000	0x0000
	…								
	A62	100	6	0x1201	0x0003	0x0000	**0x7D06**	0x0000	0x0000
	A63	100	6	0x1201	0x0003	0x0000	**0x7F06**	0x0000	0x0000
	G0	100	6	0x1201	0x0003	0x0000	**0x8106**	0x0000	0x0000
	G1	100	6	0x1201	0x0003	0x0000	**0x8306**	0x0000	0x0000
	...								
	G14	100	6	0x1201	0x0003	0x0000	**0x9D06**	0x0000	0x0000
	G15	100	6	0x1201	0x0003	0x0000	**0x9F06**	0x0000	0x0000

SCENE 0	Broadcast	100	6	0x1201	0x0003	0x0000	**0xFF10**	0x0000	0x0000
	A0	100	6	0x1201	0x0003	0x0000	**0x0110**	0x0000	0x0000
	A1	100	6	0x1201	0x0003	0x0000	**0x0310**	0x0000	0x0000
	…								
	A62	100	6	0x1201	0x0003	0x0000	**0x7D10**	0x0000	0x0000
	A63	100	6	0x1201	0x0003	0x0000	**0x7F10**	0x0000	0x0000
	G0	100	6	0x1201	0x0003	0x0000	**0x8110**	0x0000	0x0000
	G1	100	6	0x1201	0x0003	0x0000	**0x8310**	0x0000	0x0000
	...								
	G14	100	6	0x1201	0x0003	0x0000	**0x9D10**	0x0000	0x0000
	G15	100	6	0x1201	0x0003	0x0000	**0x9F10**	0x0000	0x0000

SCENE 1	Broadcast	100	6	0x1201	0x0003	0x0000	**0xFF11**	0x0000	0x0000
	A0	100	6	0x1201	0x0003	0x0000	**0x0111**	0x0000	0x0000
	A1	100	6	0x1201	0x0003	0x0000	**0x0311**	0x0000	0x0000
	…								
	A62	100	6	0x1201	0x0003	0x0000	**0x7D11**	0x0000	0x0000
	A63	100	6	0x1201	0x0003	0x0000	**0x7F11**	0x0000	0x0000
	G0	100	6	0x1201	0x0003	0x0000	**0x8111**	0x0000	0x0000

G1	100	6	0x1201	0x0003	0x0000	**0x8311**	0x0000	0x0000
...								
G14	100	6	0x1201	0x0003	0x0000	**0x9D11**	0x0000	0x0000
G15	100	6	0x1201	0x0003	0x0000	**0x9F11**	0x0000	0x0000

Additional Information and Equipment

DALI-Cockpit – free configuration tool for DALI systems
www.lunatone.com/en/product/dali-cockpit/

Lunatone DALI products
https://www.lunatone.com/en/

Lunatone datasheets and manuals
https://www.lunatone.com/en/downloads-a-z/

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www.lunatone.com

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The datasheet refers to the current delivery.

The compatibility with other devices must be tested in advance to the installation

