Technical Manual
MDT IP Interface

SCN-IP000.02

DIN EN ISO 9001
TAW *Cert*
Zert.Nr.19050608

1 Contents

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2 Overview

The MDT IP Interface, SCN IP000.02, has 2 parallel applications.
On the one hand there is one application for the IP Interface (Step 1), which allows access to the bus via Ethernet.
The second application (Step 2) is on the TP side and can send by KNX triggered emails, serve as a time server and provides access to the device via a Web-Interface.

	Produktdatenbanken Interfaces:		Version	ETS 3	ETS 4	ETS 5	History
	MDT USB Interface		V1.0	vd4	prod	prod	--
Step 1 →	MDT IP Interface/Router .02 Serie	NEU	V1.0	--	prod	prod	--
Step 2 →	MDT IP Interface/Router .02 Serie **Email Applikation**	NEU	V1.0b	--	prod	prod	--

Table 1: Database for applications

Important: As these are 2 different applications, both applications must be programmed independently. The IP interface must get 2 physical addresses!

Specifics:
- Use as a time server
- Extensive email functionality with status information from the KNX bus
- Supplied completely from the KNX bus, no additional power supply required!

2.1 Areas of application IP-Interface

The MDT IP interface connects the KNX bus with an Ethernet network. Through the network, KNX telegrams can be sent to other devices or received from. For communication, the device uses the KNXnet / IP protocol of the KNX Association. It thus operates as a programming interface and replaces a RS232 or USB interface.
The IP interface includes a tunneling function for point-to-point connection.
The power is supplied via the KNX bus.

2.2 Areas of application E-Mail Client

The email client can emit status reports, bit alarms and text alarms. All email events can be triggered via KNX telegrams. In addition, status reports can also be sent at fixed times - the email client has the functionality to work as a clock-master. All e-mails can be sent to up to 3 addresses simultaneously. The settings of the e-mail functionality can be carried out comfortably via the web interface.

2.3 Areas of application Timeserver

The IP Interface receives the date and time of the NTP server and can distribute them as the "master" to further KNX devices via the bus.

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2.4 Overview LEDS & Operation

The figure below shows the structure of the device and the location of the LEDs:
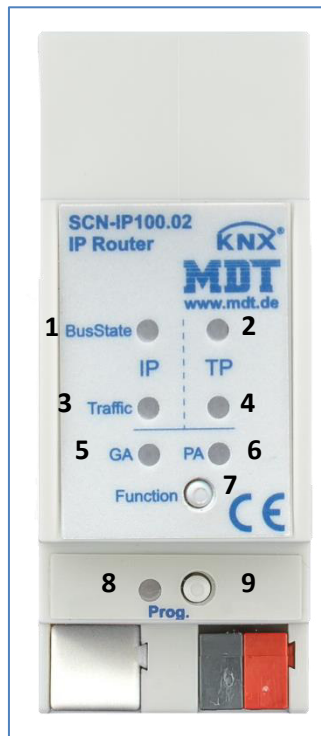
Figure 1: Structure Hardware module

1. LED Bus State - LAN
2. LED Bus State - KNX
3. LED Traffic - LAN
4. LED Traffic - KNX
5. no function
6. no function
7. Function button
8. Programming LED
9. Programming button

Function of Programming-button:
Short press: programming LED lights steady red   -> IP interface is in the programming mode
Long press: programming LED flashes red   -> E-Mail client is in the programming mode

Reset device:
Press the Function button (7) for 15sec, the LEDs 1,2,5 and 6 light red. Now release the Function button and press it again until all LEDs turn off. The device will reboot.
Now the device is reset to factory settings.

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	Green	Red
LED 1 **Bus State - LAN**	Off: LAN Error On: LAN OK	
LED 2 **Bus State - KNX**	Off: KNX Bus: Error or not connected On: KNX Bus OK	
LED 3 **Traffic - LAN**	Flashing: Bus load at LAN-side Off: No Bus load at LAN-side Speed up to 10 Mbit/s	Flashing: Transmission error at LAN side
LED 4 **Traffic - KNX**	Flashing: Bus load at KNX side Off: No Bus load at KNX side	Flashing: Transmission error at KNX side

Table 2: Overview LEDs

2.5 Commissioning

The following procedure is recommended for commissioning the SCN-IP000.02:
1. Configuration of the IP-Interface:
2. Transfer of the physical address and the application of the IP Interface. For this, the programming button must be pressed shortly. The programming LED lights steady red.
3. After successful transfer of the physical address and the application, the red LED turns off again.
4. Configuration of the E-Mail Client:
5. Transfer of the physical address and the application of the E-Mail Client. For this, the programming button must be pressed long. The programming LED flashes red.
6. After successful transfer of the physical address and the application, the red LED turns off again.
7. Accessing the Web client to configure the e-mail addresses by opening an Internet browser and call the address: http:\\IP address: port, for example: http: \\192.168.1.178:8080 for the IP address 192.168 .1.178 and the http port 8080

Important: If the IP address of the IP interfaces gets changed subsequently, the device must perform a reboot. This restart is not performed automatically by the application programming in the ETS4/5. Here, a manual restart will be required, which either by right-clicking on the device and selecting "Reset device" is executed or a short removing of the bus connector.

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3 Parameter –> IP-Interface

3.1 General

The following parameters can be set in the submenu "General":

Host name (30 signs)	MDT KNX IP Interface

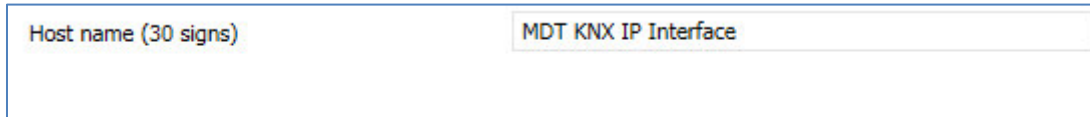**Figure 2: General Settings**

The table below shows the settings for this submenu:

ETS-Text	Dynamic Range [Default value]	Comment
Device name	any [KNX IP Interface]	Any name can be chosen for the KNX IP Interface. The name should be meaningful

Table 3: General Parameters

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3.2 IP –Configuration

The following parameters can be set in the submenu "IP Configuration":

HTTP Port	○ 80 ◉ 8080
DHCP	◉ do not use ○ use
IP adress	192.168.1.77
Net mask	255.255.255.0
Gateway	192.168.1.3
DNS-Server	192.168.1.1

Figure 3: IP Configuration 1

The following table shows the setting options for this submenu:

ETS-Text	Dynamic Range [Default value]	Comment
HTTP Port	• 80 • **8080**	Specifying of the http port
DHCP	• **use** • not in use	Setting whether the IP address should be assigned automatically via DHCP or manually be set in further submenus
IP-address	(0-255).(0-255).(0-255).(0-255) **0.0.0.0**	IP-address of the router ➤ only with manual IP address assignment
Net mask	(0-255).(0-255).(0-255).(0-255) **0.0.0.0**	Subnet mask of the network ➤ only with manual IP address assignment
Gateway	(0-255).(0-255).(0-255).(0-255) **0.0.0.0**	Gateway-address of the network ➤ only with manual IP address assignment
DNS	(0-255).(0-255).(0-255).(0-255) **0.0.0.0**	Domain Name Server of the network ➤ only with manual IP address assignment

Table 4: IP Configuration

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The assignment of the IP address of the device can be done either manually or by a DHCP server, this is often available in DSL routers.

When selecting "DHCP - do not use", the IP configuration can be set manually.

When selecting "DHCP – use", a DHCP server must assign a valid IP address to the KNX / IP router. If there is no DHCP server available, the router restarts after a certain waiting period with an AutoIP address (address range of 169.254.1.0 to 169.254.254.255). Once a DHCP server is available, it automatically assignes a new IP address to the device.

IP-address

The IP address must be allocated so that the bytes 1-3 are the same as those of the communicating computers. So the membership is given on the network. The 4th byte must be any available IP address (0-255) on the network, so as to avoid addressing conflicts.

The subnet mask is used for the device to determine whether a communication partner is located in the local network. Should not be a partner in the local network, the device does not send the telegrams directly to the partner but to the gateway, which handles the routing.

The setting of the gateway makes it possible for networks, which are based on different protocols to communicate with each other.

Note: If the KNX IP Interface is only be used in the local LAN, the entry can remain 0.0.0.0.

The network settings of the communicating computers can be read in the network settings of the PC.

3.2.1 Example of assigning IP addresses

A KNX IP interface to be accessed via PC. The PC has the following IP settings:

IP address of the PC:	192.168.1.30
Subnet of the PC:	255.255.255.0

Is the KNX IP Interface located in the same local LAN, i.e. it uses the same subnet, the assignment of the IP address is restricted by the subnet. That means in this example the IP address of the IP router has to be 192.168.1.xx. xx can be a number from 1 to 254 (with the exception of 30, which has already been used). It must be ensured, no numbers are assigned twice. The following settings can therefore be made in the IP Interface:

IP address of the IP Interface:	192.168.1.31
Subnet of the IP Interface:	255.255.255.0

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3.3 Communication settings

If the IP configuration of the KNX Interface is valid, the device can be used as an interface to KNX/EIB. Therefore, connect the IP Interface to the KNX bus and the network.

3.3.1 Procedure ETS 4

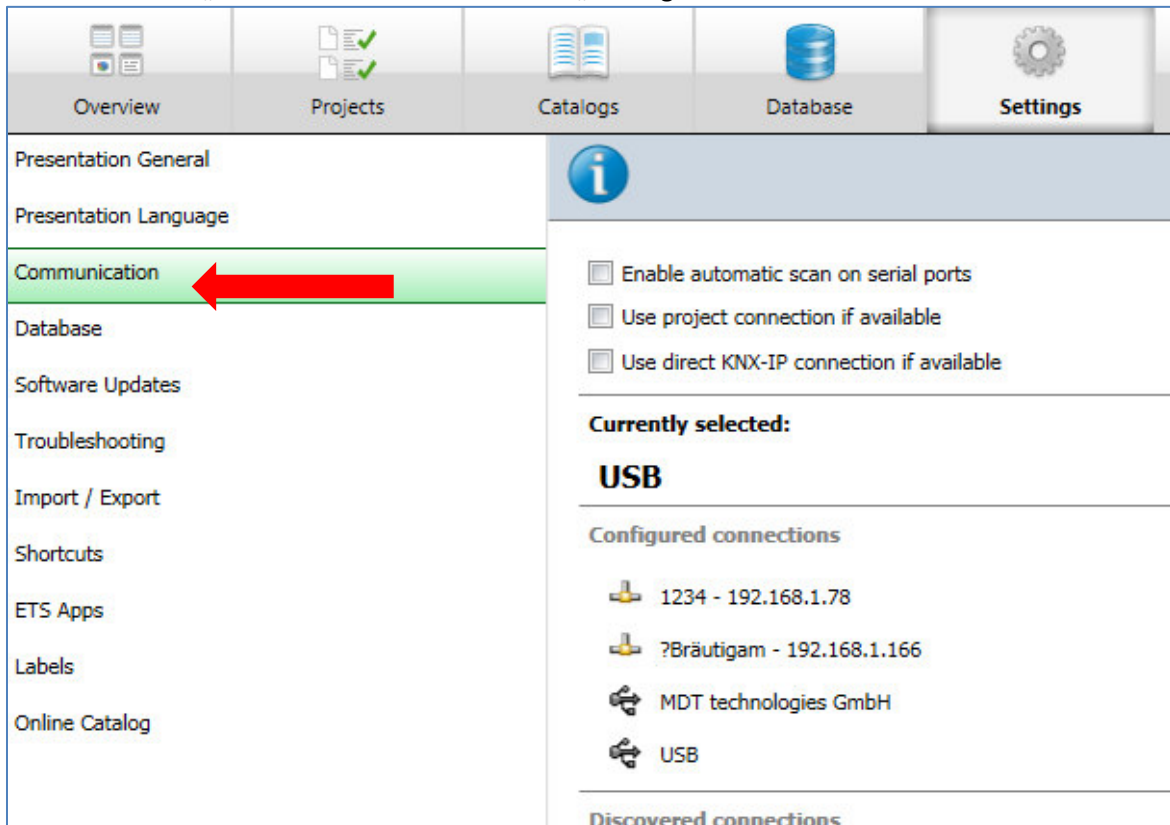Select the menu „Communication" in the folder „Settings":

Figure 4: ETS4 – Settings - Communication

Here the IP router / IP interface should be listed in the "Discovered connections":
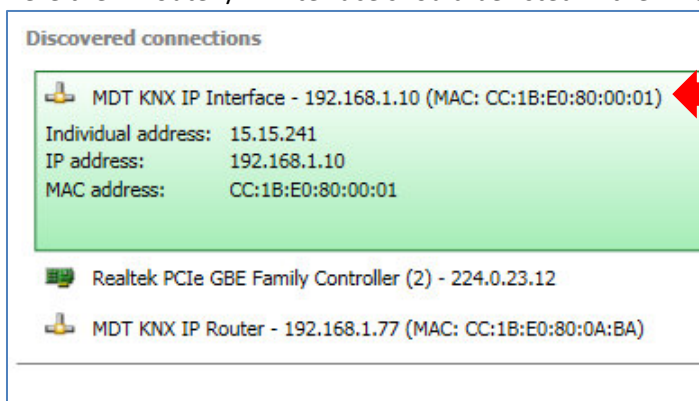

Figure 5: ETS4 - Discovered connections

The connection can be choosen as active by clicking on "Select". Now the settings for this interface can be configured by selecting the button "Settings":
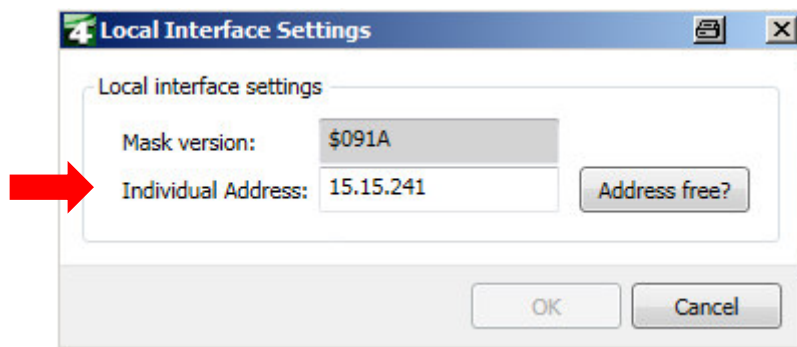

Figure 6: ETS4 - Local Settings Interface

Here, the first tunneling address can be assigned.

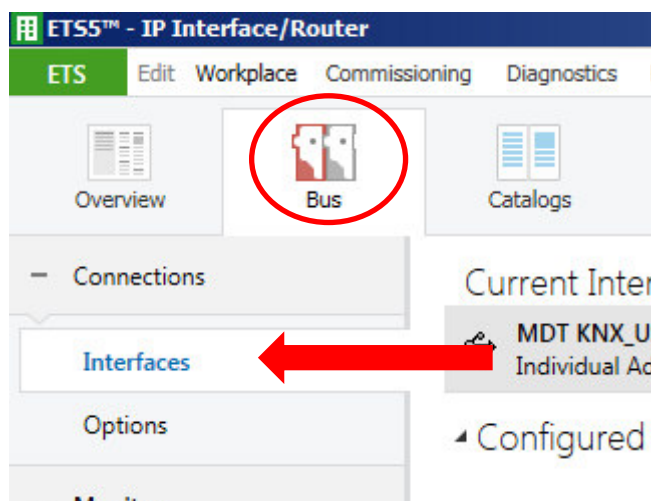### 3.3.2 Procedure ETS 5

Select „Interfaces" in menu „Bus":

Figure 7: ETS5 - Bus - Interfaces

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Here the IP router / IP interface should be listed in the "Discovered connections":

Figure 8: ETS5 - Discovered connections

After selecting the IP Router/IP Interface press button "Test". If **OK** you can press button "Select".
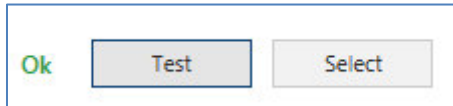

Figure 9: ETS5 - Interface Test/Select

Now device is shown as "Current Interface"

For the selected IP router / IP interface, the first tunneling connection can then be set:

Figure 10: ETS5 - IP Tunneling connection

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3.3.3 More than one connection

The KNX IP router / KNX IP interface supports up to 4 simultaneous connections. The first physical address is adjusted as described under 3.3 in the ETS connections. In the Web-Interface, the further physical addresses can be assigned automatically by pressing the "Set"button in the menu "Prog.Mode":
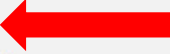

KNX IP-Router

Status Programming Mode:	Off
Change Programming Mode:	ON OFF
Individual Address	1. 0. 2
Tunneling Addresses	15.15.241
	15.15.242
	15.15.243
	15.15.244
Set Tunneling Addresses	Set
Routing Multicast Address	239.0.0.0
Serial Number	0104-262F000B

TP Device

Status Programming Mode:	Off
Change Programming Mode:	ON OFF
Individual Address	15.15.254
Serial Number	0072-FFFF07B0

Figure 11: Set Tunneling Addresses in "Prog.Mode"

Now the 3 following physical addresses are assigned. If, for example, the IP Interface has got the first tunneling address assigned to the physical address 15.15.241, so the device provides further tunneling addresses automatically to 15.15.242, 15.15.243 and 15.15.244. When the first address was assigned to x.x.255, so the further tunneling addresses are not assigned automatically!

4 Parameter –> E-Mail Client

4.1 General settings

4.1.1 General

The following figure shows the general settings:

Startup delay time	10
Telegram Operation	10 min
Lenguage for email content	◉ German ◯ English
Device name	MDT IP Interface .02

Figure 12: General settings E-Mail Client

Startup delay time
The Startup delay time determines the time between a bus voltage recovery and a functional device start.

Telegram Operation
With the cyclic "In operation telegram", a failure detection for this device can be realized.

Language for email content
Here is selected in which language the email contents are sent.

Device name
The device name is displayed in the e-mail and can be integrated via macros in the email. It is advisable here to assign a meaningful name of the object, in which the IP interface is used.

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4.1.2 Web-Interface

The following settings are available to set-up the web interface:

Password	admin
Timeout for valid login	no time limit ▼
Timeout startup of the web interface after reset	30 min ▼
Temporary activation of the web interface for Email- Event	30 min ▼
Activation/deactivation of Web interface over object	○ inactive ● active

Table 5: Settings Web-Interface

Password
The password is used to control access to the Web Interface. There should always be a password be entered!

Timeout for valid login
The parameter specifies the time at which the web interface can be reached after a login. After the set time, the web interface is automatically locked.

Timeout startup of the web interface after reset
The parameter specifies the time how long the web interface can be reached after restarting (switching ON the bus voltage or reset via ETS). After the set time, the Web interface is no more accessible and can only be reached after a restart or after an activation of the web interface via object.

Temporary activation of the web interface for Email event
The parameter allows the temporal activation of the web interface after sending an email.

Activation/deactivation of the web interface over object
To activate via bus, regardless of any other settings, a communication object can be displayed to activate the web interface via object.
Following communication object appears for this purpose:

Number	Name	Lenght	Usage
55	Web interface	1 Bit	lock/unlock of Web-Interface

Table 6: Communication object - lock/unlock Web-Interface

Attention: For security reasons it is recommended to disable the web interface after a certain time using the parameter "Timeout startup of the web interface after reset" or to activate the web interface only via object and deactivate when not in use!

4.1.3 Time/Date

The following settings are available for time and date:

Send cyclic system time each	10 min
Summer/Winter time change	○ inactive ● active
Time difference to universal time (UTC + ...)	(UTC +01:00) Amsterdam, Berlin, Bern, Rome, Vienn

Table 7: Settings Time/Date

Send cyclic system time each…
Setting whether the system time is to be sent cyclically.

Summer/Winter time change
Setting whether the time is switched automatically between summer and winter time.

Time difference to universal time (UTC+…)
Setting of timezone.

The following communication objects are displayed:

Number	Name	Lenght	Usage
2	Time	3 Byte	Sending Time
3	Date	3 Byte	Sending Date
4	Date/Time	8 Byte	Sending Date and Time

Table 8: Communication objects - Time/Date

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4.2 E-Mail functions

The IP interface supports extensive email functionality. Thus, up to 30 status items are available, whose names and values can be displayed in the emails. The emails can be triggered via bit telegrams (bit alarms) or by sending text strings (Text alarms).
Furthermore can be sent up to 3 status reports, in which the 30 status items can be displayed. These status reports can be sent out by objects as well as at fixed times.
The configuration of the e-mail functionality, such as sending e-mail address, e-mail recipients, etc., is made in the web interface, see 5 "Web interface".

4.2.1 Status elements

For the Status element 1 following settings is available:

Status element 1	○ inactive ◉ active
Description of status element	Water
Datapoint type	1Bit Switch (ON=1; OFF=0) ▼

Table 9: Settings - Status element 1

Each state element, a display name and a data point type can be assigned. The display name can then be reported in the emails.

The following data point types with the corresponding values can be set:
Lenght: 1 Bit

Data point type	Value for 1	Value for 0
1 Bit Switch	On	Off
1 Bit Lock	Locked	Unlocked
1 Bit Up/Down	Down	Up
1 Bit Open/Closed	Closed	Open
1 Bit Heating/Cooling	Heating	Cooling
1 Bit Yes/No	Yes	No
1 Bit Present/Absent	Present	Absent
1 Bit Day	Day	Night
1 Bit Night	Night	Day

Table 10: Status elements - 1 Bit

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Lenght 1 Byte

Data point type	Dynamic range
1 Byte value	0-255
1 Byte Percent value	0-100%
1 Byte HVAC Status	0x01 -> Comfort 0x02 -> Standby 0x03 -> Night 0x04 -> Frost-/Heat protection
1 Byte HVAC Mode	The HVAC mode is evaluated bit by bit and displayed: Bit 0 -> 1 = Comfort Bit 1 -> 1 = Standby Bit 2 -> 1 = Night Bit 3 -> 1 = Frost-/Heat protection Bit 5 -> 0 = Cooling/ 1= Heating Bit 7 -> 1 = Frost alarm

Figure 13: Status elements - 1 byte

Lenght 2 Byte

Data point type	Dynamic range
2 Byte unsigned value	0 – 65535
2 Byte signed value	-32768 – 32767
2 Byte floating value	-670760 – 670760

Table 11: Status elements - 2 byte

Lenght 4 Byte

Data point type	Dynamic range
4 Byte unsigned value	0 – 4 294 967 295
4 Byte signed value	-2 147 483 648 – 2 147 483 647
4 Byte floating value	Floating point according to IEEE 754

Table 12: Status elements - 4 byte

Lenght 14 Byte Zeichen

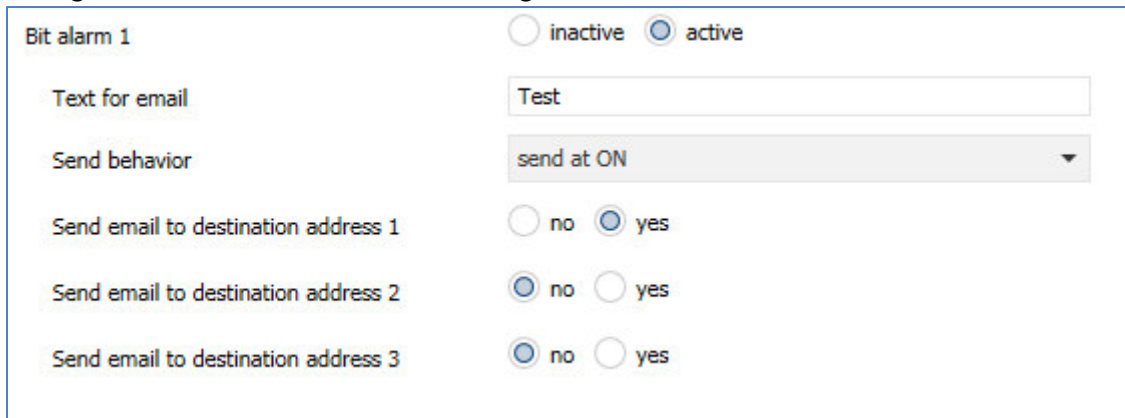| Data point type	Dynamic range
14 Byte String (ISO 8859-1)	Any string with max. 14 characters

Table 13: Status elements - 14 byte

The following table shows the available communication objects:

Number	Name	Length	Usage
21	Status element 1	1 Bit 1 Byte 2 Byte 4 Byte 14 Byte	Setting the value of the status element
+1	**next status element**		

Table 14: Communication objects - Status elements

4.2.2 Bit alarms

The figure below shows the available settings for bit alarm 1:

Figure 14: Settings - Bit alarm 1

The following table shows the settings available for an activated bit alarm:

ETS-Text	Dynamic range [Default value]	Comment
Text for E-Mail	Any text, alternatively use of macros (see Macros)	Setting of the text to be displayed in the email
Send behaviour	▪ **send at ON** ▪ send at OFF ▪ send at change to ON or OFF ▪ send at change to ON ▪ send at change to OFF	Setting when the e-mail should be sent
Send email to destination address 1	▪ yes ▪ **no**	Setting whether to send to recipients 1
Send email to destination address 2	▪ yes ▪ **no**	Setting whether to send to recipients 2
Send email to destination address 3	▪ yes ▪ **no**	Setting whether to send to recipients 3

Table 15: Setting options - Bit alarms

The table below shows the available communication objects:

Number	Name	Length	Usage
11	Bit Alarm 1	1 Bit	Triggering the first alarm bit
+1	**next Bit alarm**		

Table 16: Communication objects - Bit alarms

Macros

In order to display values in emails, macros can be used. The following macros are available:

- D -> If this macro is inserted in the text, so the IP interface replaces this by the device name.
- T -> If this macro is inserted into the text, so the IP interface replaces this to the date and time at which the e-mail event was triggered.
- Nxx -> If this macro is inserted into the text so the IP Interface replace it with the name of the Status element "xx". Should, e.g. the name of the Status element 11 be displayed, so must be entered $N11$. For the Status element 1 it is enough to enter $N1$.
- Vxx -> If this macro is inserted into the text, so the IP interface replaces this with the value of Status elements „xx". Should, e.g. the value of the Status element 11 be displayed, so must be entered $V11$. For the Status element 1 it is enough to enter $V1$.
- A semicolon creates a line break, or writes the first part before the semicolon in the subject line of the email.

Examples:
For the following examples the device name "MDT" is given. The status element 1 has the name "light kitchen" and the data point type 1 bit switching.

1) Texts for E-Mail: D T $N1$ $V1$
   An email with the subject "bit alarm: MDT" will be sent. The text of the e-mail is:
   MDT date-time light kitchen OFF
   Since nothing is separated by a semicolon, the whole text is put into the description field of the e-mail and used for the subject of the default-subject. The macros in the text field will be replaced by the IP interface and lined up

2) Texts for E-Mail: D; T; $N1$: $V1$
   An email with the subject "MDT" will be sent. The text of the e-mail is:
   Date –Time
   Light Kitchen: OFF (depending on the current value)
   The semicolons separate the name of the device as subject and the text of the email. After that date, an additional line break is generated.

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4.2.3 Text alarms

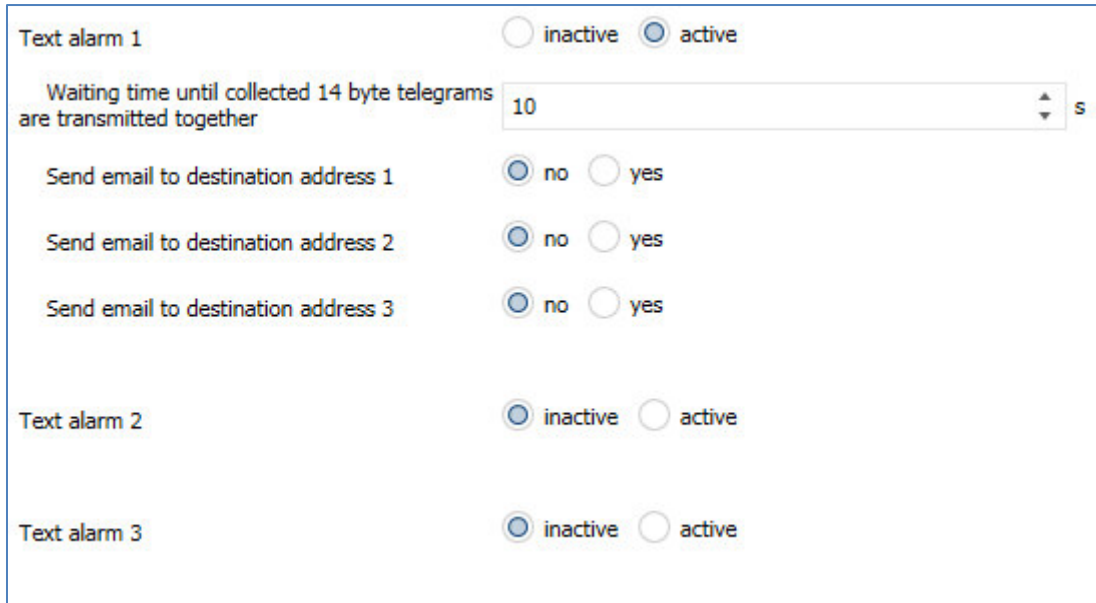The figure below shows the available settings for the first text-Alarm:

Figure 15: Settings - Text alarm 1

The following table shows the settings available for an activated text alarm:

ETS-Text	Dynamic range [Defaultwert]	Comment
Waiting time until collected 14 byte telegrams are sent out together	1-120s **[10s]**	Setting the time window in which text messages are combined into one email.
Send email to destination address 1	▪ yes ▪ **no**	Setting whether to send to recipients 1
Send email to destination address 2	▪ yes ▪ **no**	Setting whether to send to recipients 2
Send email to destination address 3	▪ yes ▪ **no**	Setting whether to send to recipients 3

Figure 16: Setting options - Text alarms

A text alarm is triggered as soon as a value is written to the corresponding communication object. To send longer texts than 14 characters: After sending a value to the corresponding communication object, the IP interface will wait the set waiting time.
If, within the set waiting time, another string has been sent to the communication object, all collected strings are sent one after another in the email.

The table below shows the available communication objects:

Number	Name	Lenght	Usage
8	Text alarm 1	1 Bit	Setting the value for the text alarm
+1	**next Text alarm**		

Table 17: Communication objects - Text alarms

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4.2.4 Status reports

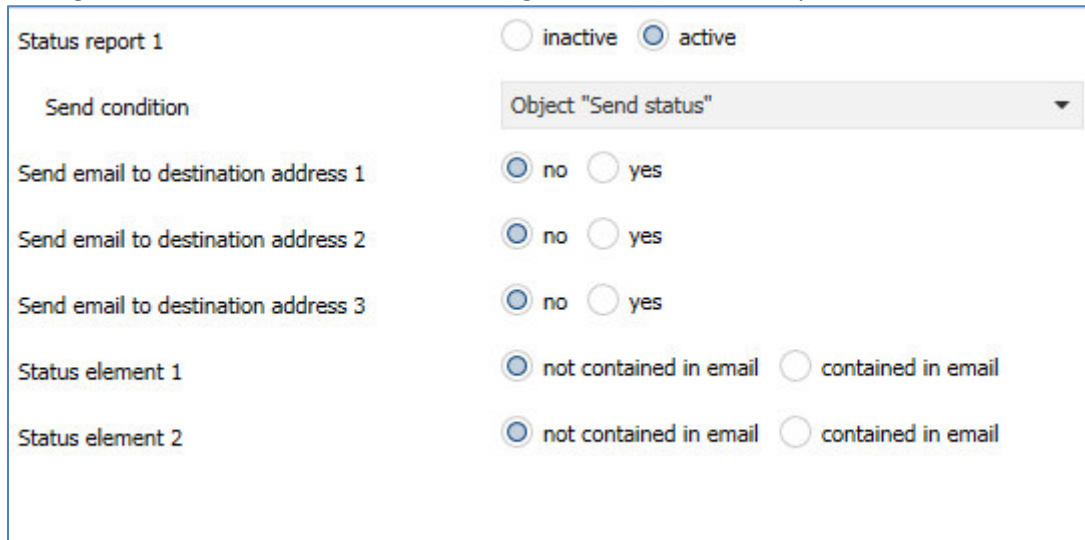The figure below shows the available settings for the first status report:

Figure 17: Settings - Status report 1

The following table shows the settings available for an activated status report:

ETS-Text	Dynamic range [Defaultwert]	Comment
Send condition	▪ fixed day in the week ▪ fixed date in month ▪ **Object „Send status"**	Setting when the status report should be sent.
Send email to destination address 1	▪ yes ▪ **no**	Setting whether to send to recipients 1
Send email to destination address 2	▪ yes ▪ **no**	Setting whether to send to recipients 2
Send email to destination address 3	▪ yes ▪ **no**	Setting whether to send to recipients 3
Status element 1-30	▪ **not contained in E-Mail** ▪ contained in E-Mail	Setting whether the status element should be displayed in the email

Table 18: Setting options - Status report

The status report can be sent cyclically, once a week or once a month, as well as beeing transmitted via object.
Each activated Status element can be integrated in the status report. All activated Status elements are displayed in the status report as follows:
Name of the status element: value of the status element

The table below shows the available communication objects:

Number	Name	Lenght	Usage
8	Status report 1	1 Bit	Sending the status report; is displayed only when the send condition is set to "object"
+1	**next Status report**		

Table 19: Communication objects - Status report

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4.2.5 Specific behavior and error handling

In the e-mail functionality the following points should be noted:
- From technical reasons, between two e-mails is a 5 second break provided for an error-free processing.
- E-mails are sent only with current time. Therefore, it is checked whether ever a time via NTP was received. If not, the emails are sent out after 5 minutes with the start date 01/01/1970 00:00.

Error code-object:

The error code object is set and sent when …
- the email was 4 times tried to transmit and this failed every time and the previous email delivery was without error or it was the first email after a restart. Between the attempts, the subsequent delays will be respected:
  - Delay before first repeat: 10 seconds
  - Delay before second repeat: 1 minute
  - Delay before third repeat: 10 minutes
- the email was tried 1 time to be sent and it failed, and the previous e-mail delivery was also flawed.

The following table shows the corresponding communication object:

Number	Name	Lenght	Usage
52	E-Mail – Error code	1 Bit	Sending an error

Table 20: Communication object - E-mail Error code

E-Mail buffer:

It can be buffered 10 emails.
- From the 8th Mail in the buffer, an alarm will be sent to the bus.
- When the buffer is full, additional email requests are rejected
- All values that are displayed in the bit alarm emails respectively status emails can only send the currently valid value at the time of shipment.
  - **Example:**
  - T=0: Status element 3 = OFF
  - T=10: Status element 3 = ON
  - If at the time t=0 the mail delivery is triggered (for example, via object), the e-mail but only at the time t=10s is emitted, the value "On" in the email will be inserted.

The following table shows the corresponding communication object:

Number	Name	Lenght	Usage
51	E-Mail buffer – overflow	1 Bit	Indicates an overflow of the e-mail buffer

Table 21: Communication object - E-mail buffer

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4.3 Overview communication objects

No.	Name	Object funktion	Data point	Direction	Info	Usage	Note
allgemeine Objekte:							
1	Operation	Send status	DPT 1.011	send	Device sends cyclic In-operation telegram	Diagnose	Communication object is displayed once the "cyclic In operation telegram" was activated.
2	Time	Send current time	DPT 10.001	send	Device sends time	Time synchronization	Communication object is permanently displayed.
3	Date	Send current date	DPT 11.001	send	Device sends date	Time synchronization	Communication object is permanently displayed.
4	Date/Time	Send current date and time	DPT 19.001	send	Device sends date and time	Time synchronization	Communication object is permanently displayed.
51	E-Mail buffer	Overflow	DPT 1.005	send	Device reports error	Diagnose	Communication object is permanently displayed and shows an email to overflow.
52	E-Mail	Error code	DPT 1.005	send	Device reports error	Diagnose	Communication object is permanently displayed and displays an e-mail transmission error.
53	NTP Time server	Error	DPT 1.005	send	Device reports error	Diagnose	Communication object is permanently displayed and indicates that no time from NTP time server could be received
54	Webinterface	Lock status	DPT 1.003	send	Device sends Status	Diagnose, Visualisation	Communication object is permanently displayed and indicates whether the web interface is accessible.

55	Web interface	Lock	DPT 1.003	receive	Device receives input telegram	Diagnose, Commissioning	Communication object must be activated in the parameters; releases the web interface.
E-Mail Function:							
5	Status report 1	Send E-Mail	DPT 1.010	receive	Device receives input telegram	Triggering the status report	Communication object will appear as soon as the status report is active and the transmission condition is set to object
+1	**next Status report**						
8	Text Alarm 1	Send E-Mail	DPT 16.001	receive	Device receives input telegram	Triggering the Text-alarm	Communication object will appear as soon as the text alarm is active
+1	**next Text alarm**						
11	Bit Alarm 1	Send E-Mail	DPT 1.005	receive	Device receives input telegram	Triggering the Bit-alarm	Communication object will appear as soon as the Bit alarm is active
+1	**next Bit alarm**						
21	Status element 1	according to parameters	DPT xxx	receive	Device receives status	Status of other devices on the KNX bus	Communication object will appear as soon as the Status element is activ; DPT is set according to the parameter setting
+1	**next Status element**						

Table 22: Overview communication objects

5 Web-Interface

5.1 Call of the Web-Interface

The web interface can be accessed in 2 types:

1.) Via the Browser:
   For this, open your default browser and insert the following address in the address bar:
   http:\\ip-address:Port
   Example: The following settings are made for the IP interface:

HTTP Port	○ 80 ◉ 8080
DHCP	◉ do not use ○ use
IP adress	192.168.1.178
Net mask	255.255.255.0
Gateway	192.168.1.3
DNS-Server	192.168.1.1

Figure 18: Web-Interface - Example IP Configuration

Here insert http://192.168.1.178:8080 to the address bar.

2.) Go to the Windows Explorer and open the folder "Network". Here your IP interface should appear with the specified host name. Double-click on the interface, your default browser is invoked with the correct address.

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5.2 Overview Web-Interface

After calling up the web interface, the login window appears:

KNX-IP Interface

You have to login to see this page!

Device Info		Password	••••••••
Prog. Mode			
Email		Login	
Time			
Firmware Update			
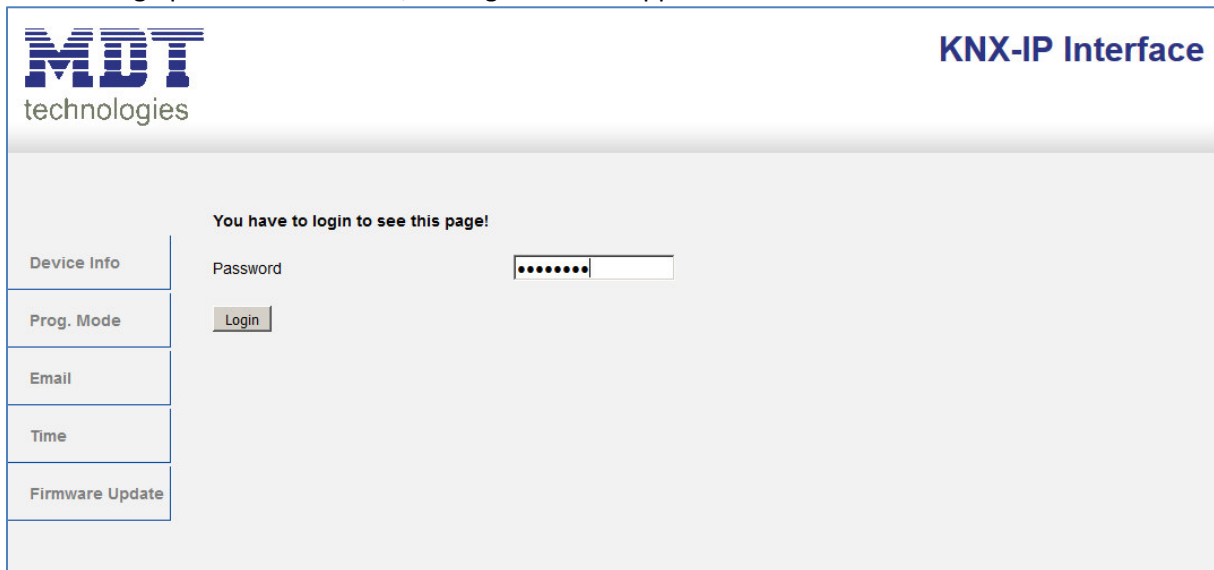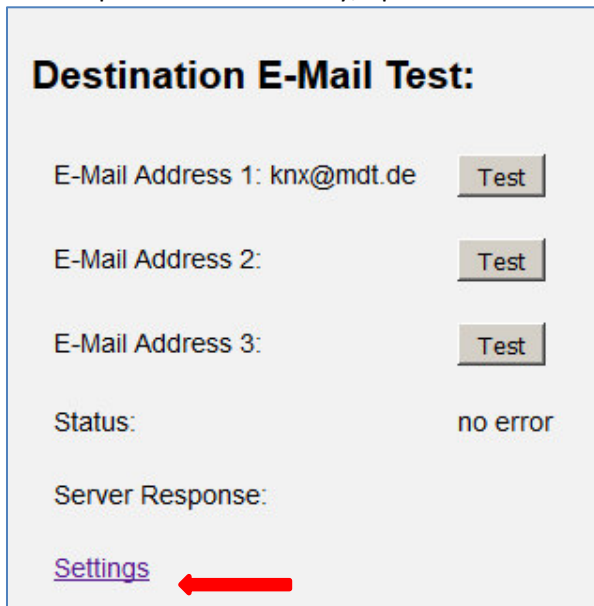
Figure 19: Web-Interface - Login window

After a successful login, the menus can be selected on the left side. The menus have the following functions:

- **Device Info**
  The menu "Device Info" contains information and settings of the IP interfaces, such as MAC address, IP address, network settings, software version, etc.
- **Prog. Mode**
  In the menu "Prog. Mode" the programming LEDs for the TP and the IP side can be switched ON and OFF. Furthermore, the allocated physical addresses, the tunneling addresses and serial number can be seen.
- **Email**
  In the menu "Email" the e-mail functionality can be set, see also 5.3 .
- **Time**
  In the menu "Time", information concerning the time server can be viewed.
- **Firmware Update**
  It is possible to perform an update for the IP interface. Please contact the MDT support if an update for your device is available and if so, useful. The MDT Support tells you the steps required to.

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5.3 Setting of E-Mail functionality

To set up E-mail functionality, open the menu "E-mail" and click "Settings":

Figure 20: Web-Interface – Destination E-Mail test

Subsequently, the following menu opens:

Figure 21: Web-Interface – E-Mail settings

Now the sending E-mail address and the destination addresses (up to 3) can be set.
The following settings have to be made for the sending email address:

- **SMTP server address**
  Here the outgoing mail server has to be specified.
- **SMTP server port**
  Here the port is specified for the outgoing mail.
- **E-Mail Address**
  Specification of the sending email address.
- **Username**
  The name needs to be entered with which you log on to your e-mail address. This can vary depending on the provider and can be e.g. a complete e-mail address, a user name or an ID.
- **Password**
  Enter the password you use to log in to your e-mail address.

Note: The following example is made with the German provider "WEB.DE". For details regarding the specifications of other providers (outside Germany) please check with your local provider.

If searching for server data e.g. at web.de, the following data are given:

Figure 22: Example 1 - server data (German)

Thus, in the field „SMTP server address" the value „smtp.web.de" can be entered and in the field „SMTP server port" the value „587"
At the provider web.de it is further required that the sending of e-mails via external programs needs to be activated in the settings:

Figure 23: Example 2 - server data (German)

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In addition to the above described vendor web.de, the following providers are tested with the settings listet below:

gmx.de

SMTP server adress:	mail.gmx.net
SMTP server port:	587

1&1

SMTP server adress:	smtp.1und1.de
SMTP server port:	587

Telekom

SMTP server adress:	smtpmail.t-online.de
SMTP server port:	465

HotMail, jetzt outlook.com/de

SMTP server adress:	smtpmail.live.com
SMTP server port:	587

Strato

SMTP server adress:	smtp.strato.de
SMTP server port:	587

All data of the email providers are on the state of the manual, see front page, and are not guaranteed.

Into the "Destination E-mail address" insert all email addresses (max. 3) to which you want to send an email.
Then you close the menu by the OK button.
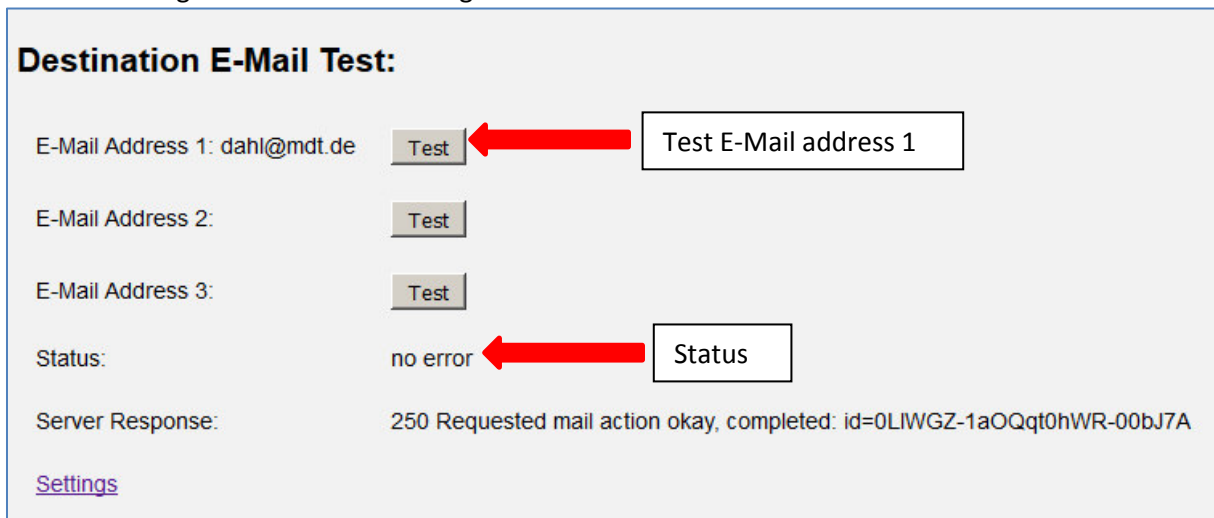In the following menu the e-mail configuration can be tested:

Figure 24: Web-Interface – E-Mail Test

After successful configuration, a test e-mail to the set destination addresses can be triggered. Then the status is displayed and if so, an error is displayed. The significance of the error codes is shown in 5.4.

5.4 E-Mail – Error codes & remedy

Status in the web interface always shows the status of the last sent email. If an error occurs, the error codes have the following meanings:

- Error 0: No error (250 Requested mail action okay, completed: id=0LgK3g-1aIfqB1ZsS-00nhnX)
  - Last E-Mail was sent without problems.
- Error 4: unable to connect to server
  - Wrong Port specified
    - Check Port
- Error 6: invalid sending Email address
  - Sending-E-Mail address is invalid
  - Sending-E-Mail address not accepted by server
    - Check the settings for the E-Mail address
- Error 8: invalid receiving Email address
  - Destination E-Mail address is invalid
    - Check destination E-Mail address
- Error 9: Socket unexpectedly closed
    - Restart the device and if necessary reprogram
- Error 12: Unknown/unsupported server authentication request (535 Authentication credentials invalid)
  - Invalid username or password
    - Check username and/or password

5.5 Receive E-Mail as push message

E-mails can be received as a push message to the phone. Therefore, certain services need to be used.
Thus, e.g. be used for Apple devices, the service Prowl: http://www.prowlapp.com/ can be used.
By using push messages, emails are immediately displayed as "Notification" on the device.

5.6 Receive E-Mail as SMS

To convert emails into SMS and send this, a number of providers offer this service in certain packages, for example, Telekom. If your email provider does not support any SMS-service for e-mails, so third parties like SMS77 - https://www.sms77.de/ - can be used.

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6 Index

6.1 Register of illustrations

6.2 List of tables

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7 Attachment

7.1 Statutory requirements

The above-described devices must not be used with devices, which serve directly or indirectly the purpose of human, health- or lifesaving. Further the devices must not be used if their usage can occur danger for humans, animals or material assets.
Do not let the packaging lying around careless, plastic foil/ -bags etc. can be a dangerous toy for kids.

7.2 Routine disposal

Do not throw the waste equipment in the household rubbish. The device contains electrical devices, which must be disposed as electronic scrap. The casing contains of recyclable synthetic material.

7.3 Assemblage

Risk for life of electrical power!

All activities on the device should only be done by an electrical specialist. The county specific regulations and the applicable EIB-directives have to be observed.

7.4 Datasheet

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MDT Interface, MDRC

Version		
SCN-USBR.01	USB Interface	2SU MDRC
SCN-IP000.02	IP Interface	2SU MDRC
SCN-IP100.02	IP Interface with Routing	2SU MDRC
SCN-LK001.01	Line Coupler	2SU MDRC

MDT technologies offers four KNX Interfaces to enable communication between PC and the KNX/EIB system.

KNX USB Interface: The USB Interface enables the communication between the PC and the KNX/EIB system. The USB interface is galvanically isolated from the KNX/EIB bus.

KNX IP Interface: The IP Interface enables the communication between the PC and the KNX/EIB system via LAN. 4 simultaneous connections possible.

KNX IP Interface with routing: This interface offers the same functions as the IP Interface, but the device routes telegrams as a line/area coupler using the the LAN.

KNX IP Line Coupler: The Line Coupler connects two KNX lines to each other. Electrical isolation between the lines and reduction of the busload by using the filter function.

The MDT KNX Interfaces are modular installation devices for fixed installation in dry rooms. They fit on DIN 35mm rails in power distribution boards or closed compact boxes.

For project design and commissioning of the MDT KNX Interfaces it is recommended to use the ETS. Please download the application software at www.mdt.de/Downloads.html

SCN-USBR.01

SCN-LK001.01

SCN-IP100.02

SCN-IP000.02

- Production in Germany, certified according to ISO 9001

USB Interface:
- To enable bidirectional communication between PC and the KNX bus via USB
- Fully compatible to ETS3f/4
- Long frame support for ETS5

IP Interface:
- To enable bidirectional communication between PC and the KNX bus TCP/IP
- 4 simultaneous connections possible
- Long frame support for ETS5
- Programming the KNX bus via TCP/IP
- **Power supply by KNX bus, no external bus power supply required**
- **Encrypted transmission at sending emails**
- **Time server functions to send time and date on the KNX bus**
- Modular installation device for DIN 35mm rails
- Integrated bus coupling unit
- 3 years warranty

Technical Data	SCN-USBR.01	SCN-IP000.02	SCN-IP100.02	SCN-LK001.01
Interface	USB	Ethernet	Ethernet	KNX
Specification KNX interface	TP-256	TP-256	TP-256	TP-256
Available application software	ETS 3/4/5 with long frame support for ETS5			
Permitted wire gauge				
Screw terminal	--	0,5 - 4,0mm² solid core 0,5 - 2,5mm² finely stranded		--
KNX busconnection terminal	0,8mm Ø, solid core	0,8mm Ø, solid core	0,8mm Ø, solid core	0,8mm Ø, solid core
Power Supply	KNX bus	KNX bus	KNX bus	KNX bus
Power consumption	< 0,3W	< 0,8W	< 0,8W	< 0,3W each line
Operation temperature range	0 to + 45°C	0 to + 45°C	0 to + 45°C	0 to +45°C
Enclosure	IP 20	IP 20	IP 20	IP 20
Dimensions MDRC (Space Units)	2SU	2SU	2SU	2SU

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Zert.Nr.1905606