

Facility Colour Touch Panel IP
Art.-No.: FP 701 CT IP

Operationsmanual

1 Safety instructions

Electrical equipment must be installed and fitted by qualified electricians.

Failure to observe the instructions may cause damage to the device and result in fire and other hazards.

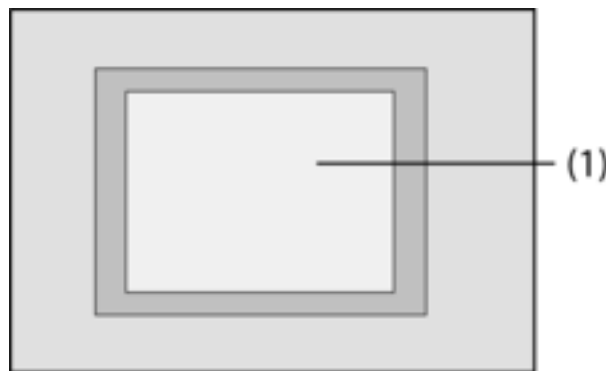
Always disconnect before working on the device. At the same time, take into account all circuit breakers that supply dangerous voltage to the device.

Do not touch the screen with sharp or pointed objects.

Do not use sharp objects for cleaning. Do not use acids or organic solvents.

These instructions are an integral part of the product, and must remain with the end customer.

2 Device components



picture 1: Front side

(1) Touch screen surface

3 Function

System information

This device is a product of the KNX system and complies with the KNX directives. Detailed technical knowledge obtained in KNX training courses is a prerequisite to proper understanding.

The function of this device depends upon the software. Detailed information on loadable software and attainable functionality as well as the software itself can be obtained from the manufacturer's product database. Planning, installation and commissioning of the device are carried out with the aid of KNX-certified software. The latest product database and technical descriptions are always available on the homepage.

Intended purpose

- Operating consumers and displaying the status of systems and information e.g. light switching, dimming, controlling curtains, temperature and consumption values, emails or messages etc.
- Flush-mounted installation in hollow or solid walls in the interior

Product characteristics

- Illuminated programmable graphic colour screen TFT 5.7", 320x240 pixel, 4096 colours
- Touch screen, operation via touch directly on the screen screen, operation via touch directly on the screen

- Fitting position horizontal or vertical
- USB port for fast programming by means of PC
- Max. of 1600 operating functions, 400 display functions
- Max. of 50 pages
- Max. of 24 light scenes with 32 actuator groups
- Week time switch with 16 time programs, 8 switching times for each (optional Astro or random function)
- Max. of 50 fault messages, centralized fault message
- Alarm system with two activation areas
- Blocking function - enables cleaning of the display
- Password protected areas
- Max. of 80 logic gates, 12 multiplexers
- Recording and displaying events, consumption values, processes etc.

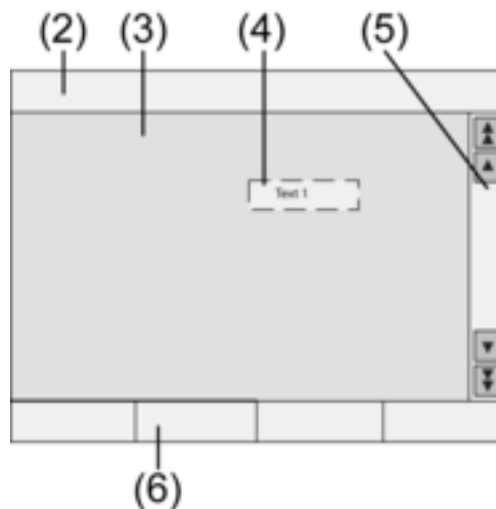
Additional functions when connecting to IP-/Ethernet network:

- Management of up to 5 email boxes and displaying of email texts
- Displaying and managing a maximum of 8 RSS feeds
- Remote control by PC software

4 Operation

Screen elements

The functions as well as the appearance of the screen depend on the programming and is therefore different for each system. The possible control elements on a screen page display status information, values or information, or are programmed for operation.



picture 2: Screen elements

- (2) Status line
- (3) Screen page
- (4) Control or display element
- (5) Scroll bar
- (6) Function keys

Touch-sensitive surface

The display screen features a touch-sensitive surface, the so-called touch screen. The device is operated by touching the screen surface with your finger or by special touch screen pens (not included).

- Do not touch the screen with sharp or pointed objects.

Status line

If programmed, the status line (2) will be visible at the upper screen edge. The status line displays up to ten elements:

- Event display
- Centralized fault message
- Value display
- Date, time of day, ASCII texts

Screen page

Control and display elements (4) or images are displayed on screen pages (3).

- Display elements (4) indicate states of components.
- Control elements are used for navigation or symbolize devices, components and functions to be controlled.
- On each screen page (3), background images can also be stored.

Scroll bar

The scroll bar (5) is used to navigate through one or several pages. Pressing the arrow keys will let you switch between the key elements.

- Double arrow keys: visible only, if connected pages are available. The display will switch to a connected page.
- Arrow keys: Switching between the display elements of the current page.

Function keys

There is a maximum of four function keys (6) available for each control element (4) which can be displayed and operated after selecting the control element.

Selecting functions /consumers

In order to use a function, it has to be selected first.

- Select the page with the element representing the function to be controlled or displayed.
- Select the desired element with your finger.

The screen switches the display

- or -

the appropriate function keys will be displayed.

The function can be operated.

Operating a function or load

The operation depends on the type of function.

The respective function must be selected and the function keys must be displayed.

- Switching: Briefly actuate the respective function key.
- Dimming: Actuate the respective function key for a long time.
- Moving blinds: Actuate the respective function key for a long time.
- Stopping or adjusting blinds: Briefly actuate the respective function key.
- Selecting light scenes: Briefly actuate the respective function key.
- Set value, e.g. brightness or temperature setpoint: Short press on the corresponding function key.
- Adjusting value with direct input: After selecting the function key, the screen will display a keypad. Enter the value as a number and confirm by pressing **Save**.
- Adjusting values with slider: After the selecting the function key, the screen will display a slider, the adjustment range and the current value. Change the value by adjusting the slider and confirm by pressing **Save**.

Setting the timer

Timer functions must have been stored in the device during programming.

- Select **timer** page.
- Select the desired timer function and press **Change**.

The switching times for the selected timer function will be displayed.

- Select the switching time to be changed.
The page showing the selected switching time will be displayed.
- Select **Time of day** and enter the desired switching time via the keypad. Accept input by pressing **Save**.
- Select **day of the week**. Activated days of the week are indicated by an **X**
- Select **Astro** if desired.
- i** If **Astro** is selected, the sunrise or sunset time is used as switching time. The set time of day limits the switching time to the earliest or latest time depending on whether or not it is a switching function or blind function:

set switching time	0:00 to 11:59 hours	12:00 to 23:59 hours
Lighting	Switches at sunrise, but at the set switching time at the latest	Switches at sunset, but at the set switching time at the earliest.
Blind / shutter	Switches at sunrise, but at the set switching time at the earliest	Switches at sunset, but at the set switching time at the latest.

- Specify the desired action, e. g. on/off, dimming value or similar.
- Accept input by pressing **Save**.
The switching times for the selected timer function will be displayed.
- Set other switching times if required.
- Complete the entry and apply the settings by pressing **Save**.
- Complete the entry and reject the settings by pressing **Cancel**.

Deleting the switching times

- Select **timer** page.
- Select the desired timer function and press **Change**.
The switching times for the selected timer function will be displayed.
- Select the memory to be deleted.
The page showing the selected switching time will be displayed.
- **Delete data** select and accept entry by pressing **Save**.
- Complete the entry and apply the settings by pressing **Save**.
- Complete the entry and reject the settings by pressing **Cancel**.

Change light scenes

Time scene functions must have been stored in the device during programming.

- Select **Light scenes** page.
- Select desired light scenes.
The selected light scene is highlighted.
- Press the **Call memory** key briefly < 1 s, to call up the light scene.
- Change the name of the light scene: Press the **Change text** key and change the name using the keyboard. Complete the entry by pressing **Cancel** or accept by pressing **Save**.
- Press the **Change scene** key.
The selected scene will be called up.
The lighting fixtures, blinds etc. available for the light scenes will be displayed together with the current values.
- Enter values for the desired devices with the function keys, e.g. On, Off, 70%. Specify Unch. - unchanged - for those devices that are not part of the light scene and that are not to be changed.
- Complete the entry and apply the settings by pressing **Save**.

- Complete the entry and reject the settings by pressing **Cancel**.
- Quit the **Light scenes** page by pressing **Return**.
- i** As an alternative, a light scene can be adjusted manually on the KNX operating devices. After that, highlight the desired scene on the **Light scenes** page and press **Call memory** for > 5 sec. In this case, the device reads and saves the status of all devices included in the scene that are not declared as **Unch.** – unchanged.

Password protection

The operation of the device can completely or partially be protected against unauthorised use. For this purpose, the device can handle up to four five digit passwords which are hierarchically arranged in levels. If the device requests a password, the password for the requested level has to be entered.

The default settings for the passwords are **11111**, **22222**, **33333**, **44444**.

- i** If one or several passwords have been lost, a qualified KNX electrician can reconstruct them.

Enter password protected page

The device asks you to enter a password. The corresponding level will be displayed. The password will be displayed with asterisks. The first digit is underlined.

- Enter the password for the requested level. Possible characters are the numerical characters 0...9.

If the entry was correct, the desired page will be immediately displayed.

Opening the service page

Starting from the service page, pages for the screen and system settings as well as the cleaning function can be accessed.

- Press the **Service page** function key.
The Service page branches to the sub pages **Display settings**, **System settings** and **Administrator**.

Calibrate screen

- Open the Service page
- Press **Display settings**.
- Press **Touch calibration**
The screen displays several points in sequence.
- Press the middle of the displayed point.
- The screen will automatically terminate the calibration.

Cleaning the screen

The device features a special cleaning function in order to avoid activating unintentional functions when removing dirt, finger prints etc.. While the cleaning function is active, touching the screen surface will cause no action.

- Open the Service page
- Activate **Cleaning function**
Clean the screen surface with a soft cloth. If needed, moisten the cleaning cloth. The touch will not be evaluated for the duration of 1 minute. The device displays the remaining cleaning time on the screen.

The device will return to the service page once the cleaning time has ended.

- i** Do not use sharp objects for cleaning.
- i** Do not use strong cleaning agents, acids or organic solvents.
- i** Keep moisture from penetrating into the device.

Adjusting basic brightness

The screen will switch into the energy saving basic brightness after several minutes of nonuse.

- Open the Service page

- Press **Display settings**
- Press **Brightness settings**
- Select basic brightness: **Bright**, **Dim** or **Off**.
The new setting will be visible as soon as the device switches back into the basic brightness.

Setting the date

- Open the Service page
- Open **System settings**
- Select **Date**
- Enter the current date. Sequence: DD.MM.YYYY.
- Accept the entry by pressing **Save**.

 Invalid entries will not be accepted.

Setting the date

- Open the Service page
- Open **System settings**
- Setting the **time of day**
- Enter the current time of day. Sequence: HH:MM.

 Enter the time of day in the 24 hour mode.

- Accept the entry by pressing **Save**. Invalid entries will not be accepted.

Setting the day of the week

- Open the Service page
- Open **System settings**
- Select **Day of the week**
- Select the current day of the week.
- Accept the entry by pressing **Save**.

Viewing the service address

- Open the Service page
 - Open **System settings**
 - Select **Service address**
- The device will display the current fault messages.

Viewing the service address

- Open the Service page
 - Open **System settings**
 - Select **Service address**
- The pre-set maintenance address will be displayed.

Changing the colour settings

- Open the Service page
- Open **System settings**
- Select **Colour settings**
- Select desired colour scheme.
- Accept the entry by pressing **Save**.

Resetting to default

- Open the Service page
- Select **Administrator**

- Select **Default settings**

A confirmation request appears on the screen asking whether the default setting is to be restored and whether all user data is to be deleted.

- If the user data is not to be deleted: Press **No**.

- If the default setting is to be restored: Press **Yes**.

The device initialises, the setting will be restored to default.

Light scenes will be deleted (names and values).

Timer data will be deleted.

Selected colour scheme and basic brightness will be reset.

Fault messages will be deleted.

Calibration data will be reset to the standard setting.

Stored emails, RSS feeds and value sets will be deleted.

The function will be logged in the past events memory.

-  Project data and passwords are not affected when restoring the default setting.

Changing the password

- Open the Service page
- Select **Administrator**
- Select **passwords**
- Select the desired password level.
- Enter the new password.
- Accept the entry by pressing **Save**.

Viewing the past events

The device saves important events in the past events memory such as reset or the download of program or project data. Simple operations will not be saved.

- Open the Service page
 - Select **Administrator**
 - Select **Past events**
- Viewing the **past events**

Viewing the version

The **Version** page displays the current software version.

- Open the Service page
 - Select **Administrator**
 - Select **Version**
- Details regarding the **Version** of the device are displayed.

Email functions

Emails can be displayed on the device when configured. The following requirements must be fulfilled in order to use the email function:

- Connection to an IP-/Ethernet network
- Access to an email server in the Intranet or Internet
- mailboxes set up with the PC client software

The following functions are available:

- The displaying of 5 mailboxes
- The displaying of new emails
- The displaying of email texts
- Sending predefined emails, e. g. triggered by system events.

Opening email box.

The email function is set up and activated.

- Open **Email** page.
The available mailboxes are displayed.
- Press the desired mailbox.
The desired mailbox is opened and the available emails are listed.

Updating email box

The email boxes are updated cyclically or manually depending on programming.

The **Email** page is opened.

- Press the desired mailbox for longer than 5 s.

i There can be separate waiting times for the mailbox update depending on the email provider.

Reading email

The desired email box is opened and the available emails are listed.

- Select desired email.
The device loads and displays the content of the selected email.
If an email does not contain any text contents, an acoustic error message sounds.

i The device displays the contents of the email that are available as a **text** format. Separate text formats e.g. rtf, html –, graphical data or attachments are not displayed.

Deleting email

The desired email box is opened and the available emails are listed.

- Select desired email.
The device loads and displays the content of the selected email.
- Press **Delete Email** function key.

RSS function

The RSS function provides a kind of news ticker, which displays headings with a brief excerpt and refers to more detailed pages.

So-called RSS feeds can be displayed on the device when configured. The following requirements must be fulfilled in order to use the RSS function:

- The device must be connected to an Ethernet network.
- An access point to an RSS provider – in the Internet or in an Intranet – must exist via the network.
- The RSS function must be set up with the aid of the PC client software.
- The selected RSS feeds must be available in the format 2.0.

The following functions are available:

- Up to 8 different RSS feeds.
- An article can be displayed on up to two screen pages.
- One picture can be displayed per article.

Displaying RSS feed

- Open the page with the available RSS feeds.
- Select the required RSS feed.
The headings of the articles currently available will be displayed.
- Select the required article.
The selected article will be opened.

Updating RSS feed

An RSS feed is updated cyclically or manually depending on programming.

The page with the available RSS feeds is opened.

- Press the desired news service longer than 5 s.

Alarm system

- i** The instructions described below concern the alarm system integrated in the device and the operation solely from the device. If other operating devices are installed in the KNX system, the operational steps must be carried out accordingly. If the device is used as a display and operating device for a separate KNX alarm control system, the appropriate instructions must be followed.

The alarm systems – with the aid of appropriate warning devices – simplifies the monitoring of windows, doors etc. Depending on the status of the systems, the response of a warning device is displayed or an alarm is triggered. The following functions are available:

- Up to 40 warning devices can be connected.
- Two security areas: exterior and interior
- Internal activation area: Exterior is monitored.
- External activation area: Exterior and interior are monitored.

- i** The alarm system in this device is by no means a substitute for a VdS certified alarm system. It is no substitute for mechanical safety mechanisms for preventing the unauthorised entry of strangers.

Status of systems

The response of the alarm system depends upon its system status:

- System deactivated: Incoming status signals are displayed but do not trigger an alarm.
- Activated: Status signals in an activation area trigger an alarm. A distinction is made between:
 - Internal system activated: People are present in the interior. Only the exterior of the building is monitored. People in the interior do not trigger an alarm. Status signals from the exterior trigger an alarm.
 - External system activated: People are not present. All interior and exterior areas are monitored. If a warning device responds, an alarm is triggered.
- Alarm: If a warning device responds within an activated security area, the alarm system switches to the alarm status. The alarm is displayed by the installed alarm signaling system.
- Fault: The system switches to the fault status if, e.g., the function of individual warning devices is so impaired that proper operation cannot be guaranteed. It is not possible to activate the system from the fault status.

Activating

The alarm system is in the status **deactivated**.

No warning device of the activated area concerned has responded.

The alarm system page is opened.

- Press Activate for the desired activated area.
 - The system switches to the status **activated** after a possible existing delay time has elapsed.
 - Switching delay appears in the display for the duration of the delay time.
 - The display indicates the status **external system activated** or **internal system activated**.
- If the device is in the activated security area, leave this security area before the system is finally activated.

Deactivating

The alarm system is in the status **external system deactivated** or **internal system deactivated**.

The **alarm system** page is opened.

- i** If the device is within the protected area, only a limited time is available for deactivation before the alarm is triggered.
- Press **Deactivated**
 - The system switches to the status **deactivated**.

Resetting fault

If a warning device does not respond to an automatic request, the system switches to the status **Fault**.

The display indicates the status **Fault**.

- Remove fault.
- Press **Confirm** on the device.

When all faults have been removed, the system switches to the status **deactivated**.

- i** If the system does not switch to the status **deactivated**, there are still faults that have to be removed.

Resetting alarm

If a warning device within an activated security area responds, the alarm system switches to the status **Alarm**. The alarm signaling systems are activated according to their programming. A triggered alarm must be confirmed on the device. The system cannot be reactivated beforehand.

The **alarm system** page is opened.

The display indicates the status **Alarm**.

- Press **confirm**
The display shows the deactivated status after alarm.
The device signals the status acoustically until confirming.
- Press **confirm**
The system switches to the status **deactivated**.

Presence simulation

The function presence simulation should convey the impression of an inhabited house. Up to 15 different groups can be recorded and if necessary repeated daily or played back over a time period of up to 7 days.

Starting recording for the presence simulation

A recording must first be set up and carried out in order to use the presence simulation function.

- Select **Presence simulation** page
- Press **Select functions**.
The device displays a number of selected functions that can be used for the presence simulation.
- Select functions for the recording and press **Save**.
- Press **Duration**
- Specify the desired recording period and press **Save**.
- Press in section **Record:Start**.
The device indicates **Recording active**.
- If the recording should be interrupted early, press **Stop**.

- i** When a recording is started, all previous recordings are deleted.

- i** A recording can comprise a maximum of 2100 telegrams. If this number is reached before the recording time elapses, the recording is ended.

Starting presence simulation

The saved recording can be played back on the exact weekday or repeatedly. If less than 7 days have been recorded, only the recorded days are played back on exactly these days in the case of the exact weekday playback.

A recording is available.

- Open **Presence simulation** page.
- Press **Type**.
- Select the playback type and press **Save**.

- The start of the presence simulation can be delayed for up to 24 hours: Press **Start delay**, enter the desired time period in hours and press **Save**.
- i** If the presence simulation should start without delay, enter the value **0** as start delay.
- Activate in section **Playback:Start**.

Stopping presence simulation

The presence simulation is active.

- Open **Presence simulation** page.
- Press **Stop**.

5 Information for qualified electricians

5.1 Fitting and electrical connection



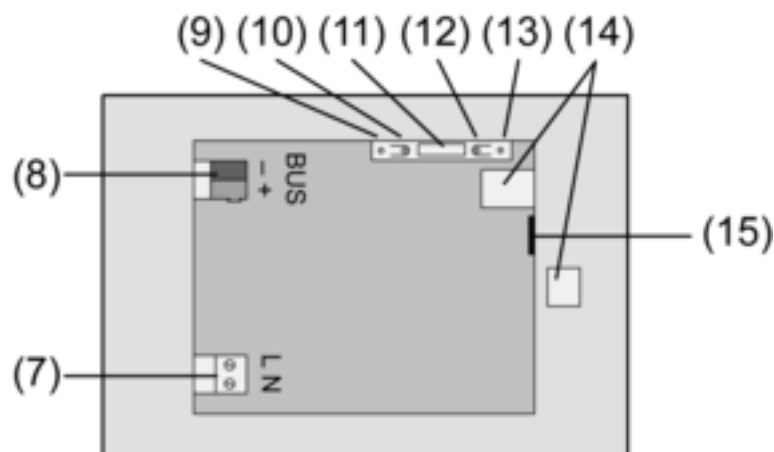
DANGER!

Electrical shock when live parts are touched.

Electrical shocks can be fatal.

Before working on the device, activate all circuit breakers, cover any voltage-carrying components in the area!

Connecting and fitting the device



picture 3: Rear side

- (7) Mains voltage connection
- (8) BUS connection
- (9) Programming LED
- (10) Programming key
- (11) Connection **Ext.**
- (12) Reset key
- (13) Reset LED
- (14) USB 2.0 connection
- (15) Ethernet connection

i Recommendation: Install at eye-level, for optimal reading.

Installation in panel-mounted housing.

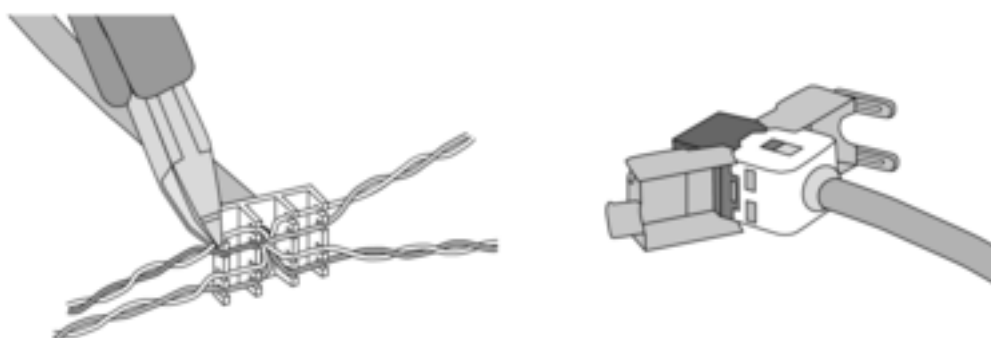
- i** Programming key and LED are accessible only from the back of the device. If possible, load the physical address into the device before the final installation (see chapter 5.2. Commissioning).

- Install the panel-mounted housing in the correct position - horizontally or vertically aligned in the wall. Horizontal installation: Arrow **OBEN TOP** points upwards. Vertical installation: Arrow **OBEN TOP** points to the left. Pull bus and 230 V lines through the designated bushings.
- Pull the supplied tube over the stripped mains voltage wires.
- Connect mains voltage AC 230 V ~ to terminal (7).
- Connect bus line to terminal (8).

Use the Ethernet connection (15) together with the supplied Ethernet adapter plug and Ethernet adapter cable to connect to the IP network.

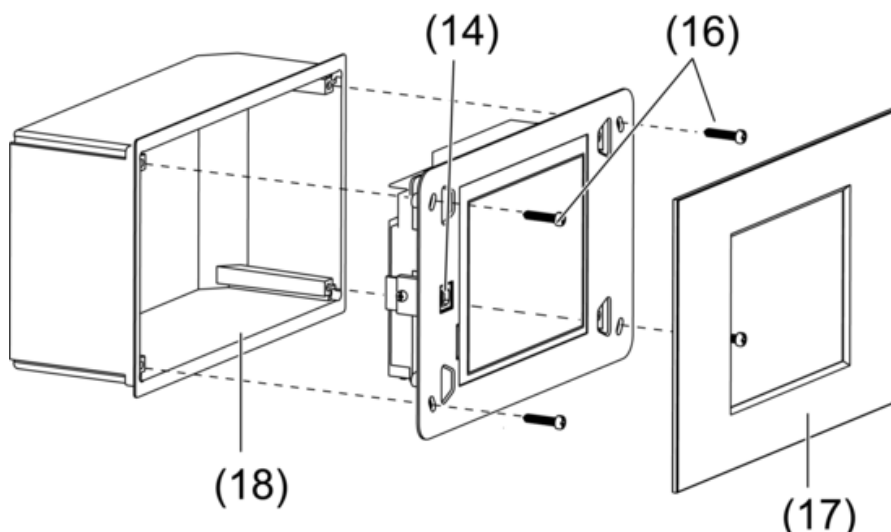
Pay attention to the correct colour assignment of the wires, EIA/TIA-568-A or -B. This can be found in the documentation of the installed network components and routers.

- i** The Ethernet connection on the device is carried out according to EIA/TIA-568-B.



picture 4

- Connect Ethernet cable to the Ethernet adapter plug. To do this, strip the Ethernet wires, do not skin, and insert into the cover of the adapter plug. Shorten any wires that are jutting out and push the cover onto the adapter plug in the correct position.
- Connect the supplied Ethernet adapter cable to the terminal (15) and Ethernet adapter plug.



picture 5: Installation in panel-mounted housing.

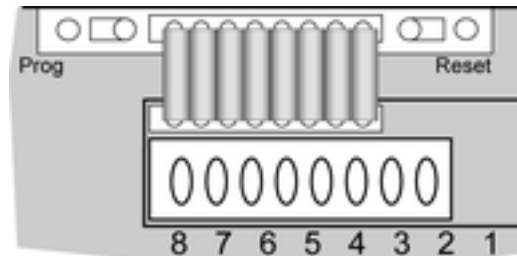
- Install device in panel-mounted housing (18). Use the screws (16) supplied.
- Attach and press on the design frame (17).

Connect external keyboard.

Alternatively, external keyboards can be connected, for example.

Use suitable cable e.g. B.J-Y(St)Y 4x2x0.6. Max. cable length 1.20 m.

- Connect keyboard. Pay attention to correct allocation.
- Insert the keyboard cable into connection **Ext.** (11). Pay attention to pin allocation .



picture 6

Pin-No.	Labelling	Function
1	COM	GND
2	▲	Key 1 – Arrow up
3	▼	Key 2 – Arrow down
4	F1	Key 3 – function key 1
5	F2	Key 4 – function key 2
6	F3	Key 5 – function key 3
7	F4	Key 6 – function key 4
8	NC	not used

5.2 Commissioning

Downloading the physical address

The device must have been connected and ready for use.

Programming key (10) and LED (9) on the bottom side of the device must be accessible.

Configuration and startup with ETS2 version 1.3a or ETS3.0d or later.

- Press the programming key (10).
The programming LED (9) is illuminated.
- Assign physical address.
The programming LED ceases to be illuminated
- Note the physical address on the bottom side of the device.

Downloading the user software

Recommendation: Due to large data volumes it is recommended to program the user software via the integrated USB interface (14).

The connection to the PC requires a USB line with plug type B.

The user software and the USB driver have to be installed before the device is connected to the PC.

-  The drivers are initialised when the device is connected for the first time to the PC. The corresponding access rights are required.

- i** During the initialisation (when the device is connected for the first time to the PC), some PC operating systems perform a check as to whether or not the USB drivers have been certified. The corresponding messages can be ignored and the installation continued.
- i** Connect one device to the PC only.
 - After installation of the device: Remove design frame (17) from the device.
The USB interface can be accessed (14) at the left edge of the device - in case of a vertical installation at the lower edge.
 - Establish a connection with the programming PC via the USB line.
 - Program the user software.
 - After programming, disconnect the USB terminal and attach and press on the design frame (17).

IP settings

Settings must be made for the IP-based functions email, RSS and remote control by PC.

The device is installed and ready for operation.

The device and PC are connected to an existing and active network.

The KNX application software must be downloaded.

The PC client software is installed on the PC and started.

- Open the Service page
- Select **Administrator**.
- Select **IP Settings**.
- Automatic IP address assignment: Setting for **DHCP: ON**.
- Manual IP address assignment: Setting for **DHCP: OFF**.
- If **DHCP: ON**: Press **Save**.

The **IP Settings** page is exited.

The network settings are updated and the router requests the new address.

- Select **IP Settings**.
The IP address is displayed after about 30 s.
- Enter IP address in PC client software.

- i** Please follow the instructions and help supplied there for settings and handling of the PC client software.

6 Appendix

6.1 Technical data

KNX medium	TP 1
Commissioning mode	S mode
Rated voltage KNX	DC 21 V ... 32 V SELV
Power consumption KNX	type 150 mW
Connection mode KNX	Terminal
Rated voltage	AC 230 V ~
Mains frequency	50 / 60 Hz
Power consumption	approx. 13.8 W
Standby power	approx. 5 W
Ambient temperature	-5 ... +45 °C
Storage/transport temperature	-25 ... +75 °C (Storage above +45 °C reduces the lifetime.)
Dimensions WxHxD	approx. 220x140x48mm (without design frame)
Connection of mains	Screw / plug terminal
single stranded	0.5 ... 2.5 mm ²
finely stranded without conductor sleeve	0.5 ... 2.5 mm ²
finely stranded with conductor sleeve	0.5 ... 1.5 mm ²
Connection Ext.	
Cable length	max. 1.20 m
USB	



Connection	Type B
Version:	2.0
Ethernet	
Type	10 MBit/s Ethernet
Connection	RJ45-socket 8/4-pin
Protocols	TCP/IP, IMAPv4, POP3, SMTP
Internal clock	
Power reserve	min. 12 hours
Rate deviation	<2 min/month

6.2 Accessories

Installation housing for touch pads
Frame for facility panel

Art.-No.: EBG 24
Art.-No.: .. 781 ..

6.3 Warranty

We reserve the right to make technical and formal changes to the product in the interest of technical progress.

We provide a warranty as provided for by law.

Please send the unit postage-free with a description of the defect to our central customer service office:

ALBRECHT JUNG GMBH & CO. KG

Service Center
Kupferstr. 17-19
D-44532 Lünen
Service-Line: +49 (0) 23 55 . 80 65 51
Telefax: +49 (0) 23 55 . 80 61 89
mail.vki@jung.de

Technik (Allgemein)

Service-Line: +49 (0) 23 55 . 80 65 55
Telefax: +49 (0) 23 55 . 80 62 55
mail.vkm@jung.de

Technik (KNX)

Service-Line: +49 (0) 23 55 . 80 65 56
Telefax: +49 (0) 23 55 . 80 62 55
mail.vkm@jung.de

ALBRECHT JUNG GMBH & CO. KG

Volmestraße 1
D-58579 Schalksmühle

Telefon: +49.23 55.8 06-0
Telefax: +49.23 55.8 06-1 89
E-mail: mail.info@jung.de
Internet: www.jung.de
www.jung-katalog.de