FRICO

TAP16R

General instructions

Read these instructions carefully before installation and use. Keep this manual for future reference.The product may only be used as set out in the assembly and operating instructions. The warranty is only valid if the product is used in the manner intended and in accordance with the instructions.

⚠️

Important The underfloor heating system is an electrical power installation and must therefore be installed in accordance with the current regulations and under the supervision of a qualified electrician.
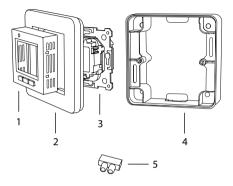
This is TAP16R

TAP16R is a microprocessor-controlled thermostat with LCD display. The display is backlit and stays lit for 30 seconds after the last push of a button. The front is fitted with an LED and three control buttons.

There are a number of temperature reduction programs to choose from for energy-smart heating. It is also possible to adjust the programming to suit your own heating needs. The adaptive function means that the thermostat collects data from the time it is started up and uses this to calculate when to turn on.

Temperature control is done with an algorithm using fuzzy logic. This technique reduces temperature fluctuations and thereby provides a more even temperature and lower energy consumption.

In the box

1. Front for Schneider Exxact (RAL 9003)
2. Frame
3. Thermostat
4. Heightening frame
5. Connection clip
   Manual
   Quick guide

Installing TAP16R

Important TAP16R must *not* be located somewhere it is exposed to the following:
• direct sunlight and draughts.
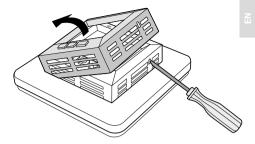• extreme fluctuations in temperature or high air humidity (IP21).

All tubes leading into the appliance box must be sealed so that the air temperature sensor cannot be affected by draughts.

Installation
Mount TAP16R in a standard 65 mm junction box or in the included heightening frame.

1. Make sure the box is level with the wall.
2. Take off the front and frame by pressing in the latch on the right-hand side with a chisel or similar tool, as shown in the illustration.
3. Connect the power, connection voltage 230 V/AC The protective conductor is connected with a coupling clamp in the box. See the wiring diagram at the right.
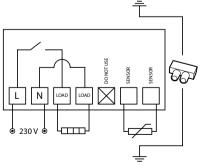
4. Insert the thermostat into the appliance box and screw tight with the existing screws.

5. Fit the frame and front.

6. If the thermostat is mounted in a multi-compartment frame, the internal corners of this frame must be removed.

External sensors (NTC 10 kΩ) are available as accessories.
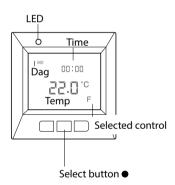

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Getting started

There is a quick guide so that you can easily get started with TAP16R.
You will find it in the box. The guide describes the most important functions and settings.

How TAP16R works

This section describes all you need
to know about how Tap16R works. To
learn how to enter settings to suit your
own requirements, read the section
How to set TAP16R.

LED

Time

MD

Dag   00:00

22.0 °C

Temp   F

Selected control

Select button ●

Display
Turn on the LCD display's backlight by
pressing any button. The display stays lit
for 30 secs after the last push of a button.

When TAP16R is started for the first
time the display shows the factory
settings as in the illustration.

How to enter personal settings is described in the section *How to set TAP16R*.

There is an explanation of the symbols on the display in the section *Symbols*.

Using the buttons
The buttons are used to raise and lower the temperature as well as navigating the menus.

You access the menus by pressing the select button ●. Use the arrows to navigate to a menu option and then confirm with ● to select it. The menu system is a scrolling system, in other words you come to all submenus regardless of the direction you start from.

If you want to exit a menu, navigate until the display shows END. Then press the select button ●. You can also wait for 30 secs and the menu will end automatically. How to navigate the menus is described in the section *How to set TAP16R*.

Turning TAP16R off and on
To enter standby mode, keep the select button ● depressed for 4 seconds. Return to normal mode by depressing ● for another 4 seconds.

The heating is not controlled in stand-by mode. The clock runs as normal and programmed times and temperatures remain in the memory.

Locking the keypad
The keypad can be deactivated to prevent anyone touching the buttons by mistake. This is shown with the lock symbol ⊶0 in the display.

Press ● and navigate to LOCK. Confirm with ● to lock.

Unlock by holding down both arrows until the key symbol has disappeared.

Temperature
Display of the actual temperature (actual value) Lock the keypad first. Press ●.
The light turns on and the current temperature in the room (R) is shown with small numbers above the desired temperature. If an external sensor is used, its current temperature (F) is shown instead.

The temperature is shown for 30 secs after the last push of a button.

Time and date
Time can be shown in 12- or 24-hour format. The correct day of the week is worked out automatically. The calendar resets itself in leap years and adapts to DST. Read how to set the correct time and date in the section *How to set TAP16R/Time and date*.

Adaptive function
TAP16R has a function which works out when the heating should start to give the correct temperature at the correct time. It is activated on delivery, but can be turned off:

Press ● and navigate to SET. Select with ●. Navigate to AF, select with ●. Navigate between ON/OFF, then confirm with ●.

Ventilation mode
If the room temperature falls by more than 3 °C in a single minute, e.g. when airing the room, the ventilation mode is activated. TAP16R will then stop heating for 15 minutes before returning to normal mode. This function is always active.

Delay between turning off and on
There is a built-in delay in order to
avoid unnecessary wear and tear on
internal components and to extend
the life of the thermostat. If you raise
the desired temperature so that the
thermostat comes on, and then lower
it shortly afterwards, it takes 30 sec
before it goes off again.

Operation time
The thermostat can display the opera-
tion time as a percentage for the last
24 hours and 7/30/365 days.

Press ● and navigate to UTIL. Press ●
to select. The display now shows the
operation time as a percentage for the
last 24 hours. You can then navigate
between the operation time as a per-
centage for the last 7/30/365 days.

LED
The LED allows you to see the current
status of TAP16R.

Green light – the thermostat is on and
the heat is turned off.

Red light – the thermostat is on and
the heat is turned on.

Flashing green and red lights – error indication. The heat is turned off. The thermostat shows the error message until it is turned off. Find out more under *Error codes*.

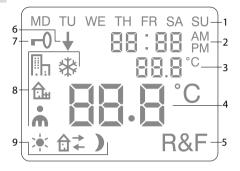No light – the thermostat is switched off or is not getting any power.

Control functions
TAP16R can regulate the temperature in three different ways. This enables the comfort temperature and any flooring temperature requirements to be combined. How you select the function you want is described in the section *How to set TAP16R/Control functions*.

External sensor – If the external sensor is connected when the thermostat is switched on for the first time, this function is selected automatically. The preset to value is 22 °C.

Room thermostat – TAP16R has a built-in sensor to measure the room temperature and control the heat. The control function cannot be selected if the external sensor is connected.

Room sensor and external sensor (combined) – Not normally used. The built-in sensor controls the room temperature and the external sensor works as a temperature limiter. The limitation is adjustable between 5 °C and 45 °C.

Symbols on the display

1. Day of the week
2. Time and date
3. Selected menu/Current temp
   (*actual value*) °C
4. Set temp (*set point*) °C
5. Selected control
6. Shows that a program is running
7. Lock symbol
8. Program
9. Event functions for personal settings

How to set TAP16R

This section describes how to set up TAP16R. By adjusting these settings, you can customize the heating system to your own needs.

If you want to find out more on how to navigate the menus or use the keypad, read the section *How TAP16R works*.

Reset
You use the Reset function to make TAP16R revert to default factory settings. All your personal settings will be deleted.

Press and navigate to SET. Select with ●. Navigate to RST and select with ●. Navigate between YES/NO, then confirm with ●. YES deletes the settings, NO returns to the menu.

Light and contrast
Set the light intensity of the LED
Press ● and navigate to SET. Select with
●. Navigate to LED and select with ●.

Navigate between LED L (weak light)
and LED H (strong light). Confirm with
●.

Set display contrast
Press ● and navigate to CONT. Press ●
to select. The display shows a number
between 1 and 8 depending on the
current setting. Navigate to regulate
the contrast. Confirm with ● when you
have achieved the correct level.

Time and date
Set time and date
Press ● and navigate to SET. Select with
●. Navigate to CLK and select with ●.

First set the hours by navigating to the
correct time and confirm with ●.
Set the minutes in the same way and
confirm with ●.

Set the day, month and year in the
same way. Confirm with ●. The correct
day of the week is set automatically.

Set time format
Press ● and navigate to SET. Select with
●. Navigate to DISP and select with ●.

Navigate between 12- and 24-hour
format. Confirm with ●.

Turn off DST
The calendar switches to DST automat-
ically. This function can be turned off.

Press ● and navigate to SET. Select with
●. Navigate to S and select with ●.

Navigate between ON/OFF, then con-
firm with ●.

Temperature
Change desired temperature (set point)
Each press of the up or down arrow
increases or decreases the temperature
by 0.5 °C.

Control functions
These are described in more detail in
the section *How TAP16R works/Control
functions*.

Select control function
Press ● and navigate to SET. Select with
●. Navigate to RNF and select with ●.

The icon for the current function (R, F
or R&F) flashes. Navigate between the
different options and confirm with ●.

Important R cannot be selected if the exter-
nal sensor is connected.

*Adjustment of the temperature limitation
for the room sensor and external sensor
(combined) (R&F)*
Press ● and navigate to SET. Select with
●. Navigate to OH and select with ●.

The set temperature now flashes on
the display. Navigate to the desired
temperature and confirm with ●.

Energy saving programs

A smart way to save energy is to adapt the heating to your actual daily requirements and, for example, lower the temperature when the house is empty. There are four program options for temperature reduction in TAP16R: two preset programs for home and office environments, one program which is based entirely on personal settings, and one frost protection program.

You don't need to think about the heating time when you are programming because TAP16R has an adaptive function which takes this into account automatically. Read more about this in the section *How TAP16R works/Adaptive function*.

Start a program
Press ● and navigate to PROG. Select with ●.

The icons 🏠, 🏢, 🧍, ❄ are displayed. The current program icon flashes. If none of the icons are flashing, no program has been selected. Navigate between the icons.

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Select with ● and the program starts.
When a program is running the icon is
displayed together with ↓.

Stop a program
Press ● and navigate to PROG. Select
with ●.

The current program icon flashes.
Navigate until none of the icons are
flashing and confirm with ●.

Important This does not delete the settings,
just starts/stops the program.

Different program options
The two preset programs are suitable
for most home and office environments.

Program for home environment 🏠
The temperature is automatically
reduced by 5 °C during the following
periods:
Mon – Fri 08:30 – 15:00
Mon – Sun 23:00 – 05:00

Program for office environment 🏢
The temperature is automatically re-
duced by 5 °C at all times except for:
Mon – Fri 6:00 – 18:00

Personal settings 👤
Tailor the heating by programming the
thermostat yourself.

You can set four events for every day: *wakeup* ☀ *out* 🔒→ *home* 🔒← and *night* ☽. When programming you specify the desired time and temperature for every event.

Preset means that the program runs every day, but you can also programme each day individually.

Press ● and navigate to SET. Select with ●. Navigate to 4E, select with ●. Now you will see ᴹᴰ ᵀᵁ ᵂᴱ ᵀᴴ ᶠᴿ ˢᴬ ˢᵁ. Press ●.

Wakeup ☀ is shown together with the current time and temperature.

The time flashes. Navigate until you reach the time you want the *wakeup* event to occur. Set hours first and confirm with ●, then repeat for minutes and confirm with ●.

Navigate to the desired temperature for *wakeup*. Confirm with ●.

Out 🔒→ is shown. Repeat the steps above to set time and temperature.

Home 🔒← is shown. Repeat the steps above to set time and temperature.

Night ❯ is shown. Repeat the steps above to set time and temperature.

If one of the days of the week requires different settings, do as follows:

Press ● and navigate to SET. Select with ●. Navigate to 4E, select with ●. Now you will see ᴹᴰ ᵀᵁ ᵂᴱ ᵀᴴ ᶠᴿ ˢᴬ ˢᵁ. Navigate to the day with the different requirements. Confirm with ●.

Programme the day's four events as per the instructions for *personal settings*. If there are additional days with different requirements, repeat the steps set out above.

Important During the time that the program is active it is still possible to change the desired temperature (set point). When the next programmed event starts, the thermostat reverts to the programmed temperature.

Frost protection program ❄
This program is ideal for when you want to protect against frost damage in premises which are standing empty or unused for long periods, such as holiday homes and warehouses, or when you will be away from your main home for longer than usual. You set a desired value (set point) and the thermostat

regulates the temperature in line with this. The normal settings remain in the memory and the thermostat reverts to them when the frost protection program is deactivated.

Temperature can be set to a level between 5 °C and 15 °C, the factory setting is 10 °C.

Press ● and navigate to SET. Select with ●. Navigate to FP, select with ●.

The set temperature will flash; navigate to the desired temperature and confirm with ●.

Troubleshooting

Important The heating system is a high-voltage system and any faults must therefore be corrected by an authorised electrician.

Error codes
When a fault occurs, TAP16R turns the heating off. The LED flashes red and green alternately. The LCD display shows a flashing error code as follows:

Error 1: Short circuit room sensor.
Error 2: Interruption room sensor.
Error 3: Short circuit external sensor.
Error 4: Interruption external sensor.

Test values for external sensor
When checking measurement of external sensor, the following values apply.

Temperature	Resistance
10 °C	18.0 kΩ
15 °C	14.7 kΩ
20 °C	12.1 kΩ
25 °C	10.0 kΩ
30 °C	8.3 kΩ

Technical specifications

Voltage	230 VAC-50 Hz
Temp. range	5-37 °C
Temp. limiter	5-45 °C
Breaking capacity	3680 W/16 A/230 VAC
Main switch	Single-pole
Connection cable	max 2,5 mm^2
Load	$\cos \varphi = 1$
Hysteresis	±0,3 °C
Protection class	IP21
Back up time	36 h
Max. length sensor cable	50 m, 2x1,5mm^2

Adapted for Schneider Exxact.

Approval: CE   ⊖

Complies with the RoHS and the WEEE Directive.