

Then you can change the different days. To set 6, switching times 10) The unit digit of minutes cannot be set. ->Resolution = 0 Mainter. Switching off times do not need to be entered separately. The next start time is automittality set as the previous work-off time.
 Switching times use the same temperature: Set all these witching times to the same temperature of 1 meginary subching times (and how be start fer miniquity furth 350 a.m.) for example, switching time = 230 m.

dditional Programming Details) In addition to single days of the week, you can also set blocks of days. All the days in a block are set to the same switching times and temperatures. The following blocks are available: (the arrow blinks by all these days)

Mon. Fri Working days Sat. Sun Weekends Mon. Sun All days Setting is curried out as described in above step 2. Fres 2^{-1} or 2^{-1} unit the required range black. If only feer days are different from the other days of the days of the Mon. Sun Books (all days). Then you can change the different days. To ext 6 suff-thus times

- temperature will be decreased as a low and To set 8, temperatures 10 it is possible to select among three pre-set temperatures, which can be changed as discussed under section 2.4 "Setting temperatures". Setting of temperatures al is of angles ab change will affect all setting the co-responding temperature was assigned to as explained under 3.8.

Setting switching times for the extra daily programme

The daily programme is repeated on a day by day basis. Select \bigcirc as described above, under section 2.3 step 2. Carry out the above procedure, with the exception of 11. In this way, weekly programme settings won't be affect

Checking switching times

- -nes are set
- 3. Press To exit.

2.4 Setting temperatures (1)

Here you can set the temperatures. These temperatures can be assigned to the respective times (see II Switching Times Table, 2.3 "Setting Switching Times").



- Press □ and select ①
 The arrow binks in the temperature group [1]
 The arrow binks in the temperature group [1]
 Press □ − (1) select one of the three available temperature is displayed.
 Press □ − (1) so that temperature is displayed.
 Press □ − (1) so the temperature
 Press □ − (1) so the temperature
 S. Press □ − (1) so the temperatu

Note: Setting of temperatures and switching times are indepen-dent. If one of the temperatures [j] is changed, this change will affect any setting which the corresponding temperature was assigned to, as described under 23. Setting switching times'.

Checking temperatures

Carry out steps 1 and 2 above to determine which tempera-tures are set. Press in to exit.

2.6 Reset

Reset: When unexpected results occur, the reset key should be pres-sed. All data are maintained, except for the time and day of the

2.7 Access protection

This protection prevents control settings from being chan-ged. It can be enabled only if the control is in one of the ope-rating modes (w) \overline{a} (\overline{a} , \underline{b}).

- Enabling the protection: ¹ Procs and hold down key [™] then press also [™]. Release Press and noid down key _____ tien press asso _____
 _____ first, then _____.
 _____ A is displayed. Now the values can not be changed any more.

- low the values can not be changed any note:
 Disabling the protection:
 I. Press and hold down key then press also the Release the first, then the second secon

2.8 ON / OFF function

- Switching ON Press for 5 Sec. The time will be displayed instead of OFF.

2.9 Changing the batteries

e.s. Changing the Datteries When the icon impages, the batteries should be replaced within the next days. Insert the new batteries in the battery compartment on the back of the housing. Check for correct polarity. Use only the batteries indicated under them and iday whould be adjusted again (this is automatic in those controls equipped with an RF clock), all the remaining settings are maintained. Dispose of the batteries in compliance with the relevant regu-lations in force.

2.10 RF clock It is not necessary to enter the time and day for the controls equipped with an RF clock. The control will automatically switch from summer to winter. After energising the control, the time will be acquired by radio signal. The icon $\widehat{}$ will appear on the lower right side of the display relative -3 minutes.

of the display. The current time is displayed after –3 minutes. If the FG clock is enabled (non ² displayed on the screent), it is not possible to enter the time and day manually. The time will be adjusted every day at 3 clock by radio dis-nal. If the time cannot be automatically acquired, the <u>1</u> icon will disappear after –10 minutes. The display will show 0.00, and now the time can be set manually. Every 3 hours the radio control will try to automatically upda-te the time.

2.11 Cleaning

a soft, damp cloth and a mild detergent.

3. Tips, Tricks, Troubleshooting

2. Tips, Tricks, Troubleshooting
 If certai days don't fit the regular setting of the
 weekly programme. The regular setting of the
 regarded for the specific day.
 work the specific day.
 You would like to go on holidays and ensure the
 which to the daily programme ...
 You would like to go on holidays and ensure the
 weekly function, see 1.
 We house all source is 1.
 You would like to be in source is 1.

Use the Party function, see 1.5. Sour leave the house and would like that the tem-perature returns to your usual values at the next programmed time. Use the Manual operation, see 1.1. Use the Manual operation, see 1.1. The function Going out/Returning home allows an immediate temperature setback, see 1.2.

Troubleshooting:

a) Do the programmed switching time and clock time

- d) do use programmer meaning meaning meaning meaning appears the second mean meaning mean

- factory-set values. see 6.15 "Frase"
 The display shows ooo or uuu. The temperature has exceeded the display range.

w> 1

d

The display will show A
Learn Mode was not terminated, see 6.16.
The Access protection is enabled, see 2.7

Enter the set values here

tion 1 Position 3 Position 2 Position 4

- done) 4. Press 1 to move to the required position, re-adjust the previous values, if required 5. Press _ or _ to set the desired djit. 6. Press _ or to you exit the menu. If you exit the menu by pressing __ the settings will not be stored.

3 5 III. Controller features Feature W Fixed Programme 1 = P1, 2 = P2 3 = P3, 4 = P4 5 = P5 2 = 2 sw. times, 4= 4 sw. times 6 = 6 sw. times 0 = Off 1 = On 0 = PWM, 1 = On/Off Switching times per day Valve protection \underline{W} On display 55 d 2 don't show 555 0 = dont show <u>}</u> 6 3,4 0 = Off 1 = On 0 = Room temperat 1 = Setpoint tempe 0 = Heating 1 = Cooling 0 = disabled 1 = enabled Optimum Start 5 On Room or Setpoint temp. display Heating/Cooling change-over a key as going out/ret. ho 5 Room ter 2 disabled 2 Learn Mode 1 = automatic address 2 = manual address 12 free Temperature offset Relay on/off 1 = offset 0 = no offset 1 = Relay on, 0 = Relay off 15 Ц, 4 is displayed as long Operation hours Ш 16 -

4. Use The electronic Room Temperature Control INSTAT 888 can be used to control the room temperature via: Actuators for floor and convector heating systems • Oi and gas fired how water heating systems • Circulating pumps • Leact pumps • Electric space heaters

5. Features

- 3. FealtUres Fuzzy-Control, with PVM output (Pulse-Width-Modulation) Optimum Sart (the desired temperature is reached within the set time), can be disabled.
 5 Pre-set programmes (with 2, 4, 6 switching time) 3 adjustable temperatures (confort.atandari, night) 2, 4, 6 selectable times per day, leach time can be assig-end one of the 3 available temperature), blocks of days can be used.
 A nextra daily nervenue: ***

ned one of the 3 available temperatures), block of days can be used and used and programme (for special cases, such as public An earn a day programme (for special cases, such as public weekly programme) and the special cases and the Manual Operation that enables: - changing the temperature until the next programme step - permanently changing the temperature Going out/Returning home function for a quick temport function Access protection Acc

for a setable number of days) PartyBoot function (to override the programmed temperature for a period of 3 hours) with manual temperature change Operation hours counter (1 through 9999 hours, the hea-ting requirement time is reacroided it can be also used as an ONVOFF Controller (e.g. for oil or Bumoholae morpation the manual particular to the set Bumoholae morpation the manual particular to the set of the Bumoholae morpation the manual particular to the set of the set of the Bumoholae morpation the manual particular to the set of the set of the Bumoholae morpation the manual particular to the set of the set

Pump/Valve protection (the output is enabled for 3 minu-tes daily), can be disabled

Les uanys, can be disabled that an object of the set-back input Room or setpoint temperature display, selectable Temperature display can be offset (to meet individual needs)

needs) Output can be manually switched on/off (for a quick func-tional check)

tional check) Changeover between heating and cooling (for floor coo-ling systems, there is no Optimum Start for cooling mode) LCD-Dsplay with clear, simultaneous indication of Room Temperature. Time. Day, Operating Mode, Time Zone, Temperature Zone Menu-driven operation through 4 keys Elegant design

6. Function Description 6.1 Setting controller features

The controller features can be set through menu item To access a menu, select one of the operating modes (w) a

D. ant features are shown in Table III. The rel Note:

Note: Record the elected settings on the chart below, for later tests. Hand over the instructions together with these records to your customer. Checking the features: Call the menu by an elected in the control of the set of the set table int. Set table int, then control of the press also control the current you'ld settings are displayed (see Table III). 3. Press to exit. Phonetes the customer.

6.2 Performance Instat 868-r... The INSTAT 868 performs the remote control of actuators. Temperature can be acquired at the best location, as far as sensing is concerned, in the room. This makes additional energy savings possible.

Note: a) The maximum limit up to which the controller can extend the pre-heating time is the previous switching time. b) At the first start, and, after the function "Frase or Matter-Reset" or at the beginning of the heating period, the con-trot still close not heav any valid parameters. For this ra-son, it is possible that during the first pre-heating stage the septionit temperature is not reached within the pro-grammed time. Adjusting to the specific room conditions can take sevent days

The value protection function presents the value from the memory of the value protection function presents the value from the memory such function will be enabled every day at 1000 mm. (Revalue will be turned on for -3 mm, (heating) or 7 mm. (cooling). This function is active also during the normal heating operation. This function bould be witched off if electric heating is used.

Note: Vale protection is active even if the controller is switched off via function 2.8.

displayed". Temperature is measured and displayed every 10 minutes. For quick measuring purposes, after a key is pressed the tem-perature will be updated every 15 seconds for 10 minutes. If the temperature displayed by the control does not meet the expectations, it can be adjusted according to the relevant environmental conditions. (see 6.10)

variation in steps of 0.1 degrees for -4.0 _+15 degrees is ssible. Set-up procedure: Make sure the controller has been operating for at least 1 hour.

r. isure room temperature using a thermomete t (directly nearby the INSTAT 868, –1 cm away Mesure room tempore trust (directly nearby the INSTAT 88s, -, -, -, -, the vall). Set the INSTAT 88s temperature to the mesured tempe rature by. 3.1 Seter menu ⁰₀, set position 3 to 1 (See 6.1).

 3.1 Select menu
 years

 3.2 Press key ∩

 Room temperature is displayed and blinks.

 3.3 Press ∩

 or ∩

 to set the desired temperat

6.11 Switching between heating and cooling

3.3 Press □ or □ to set the details.
 3.4 Press □ to confirm. The modified room temperature is displayed.

To cancel the change: 1. Activate Reset: see 6.15 2. While only the above row is displayed (no temperature), set position 3 in Menu ⁶₂ to 1, see 6.1. 3. Presc.[®] In confirm

The temperature display disappears. After – 2 minutes, the unchanged temperature will be displayed.

The INSTAT B88 can also be used for cooling (for example, for floor cooling) (only cooling). The Optimum Start and the temperature limiting function are not available in this case. Setting: menu ∞ , position 3, see 6.1 $\frac{1}{2}$ is displayed permanently indicating that cooling mode is active.

manually To carry out a quick test, the output relay can be manually switched on/fb by pressing a key. Setting: menu %, position 4, see 6.1 After –15 seconds the output returns to normal operation.

6.13 Displaying room or setpoint temp.

You can select if room or setpoint temperature should be permanently displayed. Setting: menu 🕿, position 2, see 6.1

This display allows reading the number of hours during which neat was requested by the control.

sed. The hours are counted starting from the last "Erase" see 6.15. The counter is not affected by the display function! Entire hours are displayed, for example 010 = 10 hours.

When unexplained results occur, the reset key should be pressed. All data is maintained, except for the time and day of the week.

Using a pointed object press the button in the hole betw the constant Reset, you must enter the time and

Erase : Used to restore the factory-set switching time and tempera ture settings. The following settings are affected: - Operation hours counter = 0 - Switching times and temperatures = standard values - time. day = 000. Mon - Optimum Start parameters = standard values

To activate the erase function: 1. Using a pointed object press the button in the h went the __k keys, and the [↑] button simultaneous 2. release __k and after -2 seconds release [↑] Now you must enter the time and day again Operating mode reset:

Warning: This command will reset the "Control mode" feature PVMM. If required, set it to On/Off control. All functions described in Table III - Features, are reset to

Now, all icons on the display are active.

Inquiry: menu (____), see 6.1 The hours will be displayed for as long as the keys a

6.14 Displaying operation hours

6.15 Erase/Reset

Reset

agann. Erase :

To activate Reset:

6.12 Switching the output on and off

manually

6.8 Valve protection

6.9 Temperature display f the temperature exceeds the high or low limit of the dis-lay range, the writing "ooo" or "u u u" respectively will be 'isplayed".

6.10 Temperature display offset

9. Common Data

INSTAT 868-r INSTAT 868-rd 0536 20... 0536 25... 0536 20... 0536 25... Batteries: 2 LR6-size alkaline batteries, 1.5V each, total=3V

–5 years 868,95 MHz

internal ZA 193 771

ZA 193771 < 10 Minutes (data are sent repeatedly) 100 m in fee air or 1 ceilings or 3 walls

5...40°C. in steps of 0.5 K

To finite (and busies) off time of Pulse-Width Modulation PWM0 5..40°C; in 0.5° steps settable 1 to199 days LCD display with simultar indication of. Time, Root Temperature, Day, Operat Mode, Time Zone and Temperature Zone 41 x 32 mm (b x h) 12 mm for Time

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Note : The Instat 868 (868 MHz) could not be used with the receivers of the INSTAT 6 (433 MHz) series.

radio authorisation is available for the following coun-ries: Germany, France, England, Belgium, Holland, uxembourg, Norway, Denmark, Sweden, Switzerland, inland, Spain, Italy, Austria, Ireland, Iceland, Portugal.

CE 0125 ①

all a

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 9 mm for Time

 Obckay mode
 24-hour, 1-minute steps

 Precision
 10 min/gen (24 20 C), 10 minute work, and 10 minute work, and 10 minute work, and 10 periotic hour cancer (12 0 999 hours)

 Operation hour concerner
 10 9999 hours

 Device protection case Humidty class
 IP 40

 Device protection case Humidty class
 IP 40

Humidity class keep av Weight (without batteries) --100g

10 Dimensions 2

Wall support

Ordering name EDP Number

Battery life exp

Typical range

Transmission frequency Radio permits Aerial Additional Antenna Transmission interval

Setpoint temperature setting Actual temperature display range Operating temperature Storage temperature Control algorithm Output signal

PWM cycle duration

iday function

Display size Digit size

To reset everything to the initial state, carry out an <u>operating</u> mode reset first and then an <u>erase</u> procedure.

It can be selected if the symbol is displayed or not. n mode heating, the symbol $\frac{M}{20}$ shows the state of the relay. f "control action" = PWM, the symbol may change each 10 Min. lo select: choose menu () position 2 see 6.1

This function allows making the radio connection between the transmitter and the receiver (for the relevant details, refer to the description of the receiver). 1. Setting through menu %, see 6.1 - position 1 = 1: with automatic address TheNSTAT 686-r auto assigns the address

TheINSTAL 800-Latte 40.00 - position 1 = 2: with manual address input The address can be manually entered

Setting the address manually When selecting position 1 = 2, the last entered address will be displayed Press] or _ to set the desired address, digit by digit, and press] to confirm each digit.

press 🗂 to confirm each digit. After the last digit has been entered the ႔ icon will appe-ar on the display. Carry out steps 3 and 4 above.

Choose a unique number as address (room number) that is not repeated throughout the whole building. Write this number on the rating plate located on the back of the control.

Mounting The control should be mounted in a location of the that:

7 Installation

hat: is readily accessible for operation purp is free from curtains, cabinets, shelves, allows free air circulation is not subject to direct sun radiation is not subject to air currents (for exa opening) is not directly affected by heat sources

is not

ectly affected by heat sources not on an external wall located at -1.5 m above the ground not close to e.g. radio, television, or other radio equip-

To fix it, use the wall support and secure it on the using either screws or adhesive tape. If you use adhesi make sure the wall surface is smooth and free from d grease. It is not possible to open the control.

Initial the control see 7. Remove the covering strip of the batteries Set the time, see 2.2 (dir controls with RF clock see 2.10). Make the radio connection, see 6.17 (see also the instruc-tions of the receiver) Set the remaining features, see Table III. Customise the programme (if required) see 2.

ote: The room temperature will be displayed after about 1

minute. The exact room temperature is displayed after -half an

Attention: A completely noise-free operation of the radio commu-nication cannot always be guaranteed at the present state of the art. We therefore recommend checking the proper operation of the device in the specific installati-on location.

Application examples for INSTAT 868-r

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Beceiver

Rec

P

Thermos

Thermostat

Four independent heating circuits are controlled by 4 thermostats and one INSTAT 868 a4 or -a6 receiver

fwo separate INSTAT 868-a1 receivers

thermostat

The control is now ready to operate It will work according to the standard program-me P1 see table II.

b) For controls equipped with an RF clock, see 2.10.

8 Start-up

The address can be manually e 2. The display will show the icon <u>A</u>. Learn Mode is enabled now. 3. Only if the radio connection has been made s (see receiver) A. Press <u>D</u> to exit. Only one transmitter at a time can be in Learn mo

6.16 Display the symbol 55

6.17 Learn mode

tering's similar pussion. The actuators can be easily controlled from anywhere in the room or in the house. No wiring is required between transmitter and receiver. Power is supplied by two "long-iasting" batterise. The controller fractivers a timer transmission signal. The built in timer allows radio-controlling the temperature setback function of additional controllers by temperature setback Several receivers can be controlled by a single transmitter.

The transmitter-receive co-ordination is automatic through the "team Mode" feature. Through the Learn Modes es 61,71 the transmitter and the receiver are synconized. In this way the influence of other INSTAT 886 controls is ruled out. The transmission frequency used is intended for these appli-cations all over Europe. Transmission safety is ensured by spe-cial test procedures and repetitions.

Transmission power is very low. It is much lower than that of a mobile phone. In addition, the transmitter will only be acti-ve every 10 minutes.

This device requires one of the INSTAT 868 a1, a4 or a6 RF-receivers to control the user units. The INSTAT 868-rd is equipped with a DCF77 radio-control-led clock.

6.3 Setting the programmes The INSTAT 868 features 5 programmes, see table

The instant sector is programmes, see table II. Programme Table Programme Table The user can select one of these programmes to auch is or her listly. If required, the workford innex, temperatures and "number of switching times" can be adjusted. When you select a programme, the providing with "Mumber of Switching Times" and temperatures will be overwritten of Switching Times" and temperatures will be overwritten will immain unchanged. In programme, the protocols witching times will immain unchanged. In programme, the protocols witching times To select it, choose menu (m. position 2

6.4 Setting no. of switching times

According to the user's lifestyle. 2, 4, 6 witching Times per day can be set. If, for example. P1 with 6 switching times is selected, the number of switching times can be adjusted, if

required. 2 switching times per day (only the switching times for \(\screen and \) are used). 4 switching times per day the switching times for \(\screen and and \) are not used). 6 switching times per day (all switching times are used) When programming the switching times, the unavailable s ching times will not be displayed.

select it, choose menu \overline{w} , position 3

6.5 Control action

b.5. Control action for PVM (setting "_____ postion 1 = 0, see 6.1) The control calculates a control value from the difference between stepoint and schula temperature, according to an intelligent control algorithm. This value is output as variable Puble?Javas ratio (Vule=WdHM-doublation). The control algorithm used tries to keep room temperature contant. For that purpose, a reduced amount of heat needs to be supplied even after the suppoint temperature has alre-ady been reached.

ady been reached. The sum of Pulse and Pause times is constant and equal to 10 If temperature difference is greater, the control is perma-nently switched on or off, for example for temperature set-back.

Pulse-Pause-Ratio Behaviour of Puls-Pause-Ratio according to Temperature 0% level sizesal

For ON/OFF control

For ON/OFF control setting see: (a) position 1 = 1, see 6.1 If the setpoint temperature is not reached, the output swit-ches on, if the setpoint temperature is exceeded, the output switches off again. This change-over occurs at least every 10 minutes (if room temperature is constant).



6.6 PWM or ON/OFF Control

Pulse-Width-Modulation is the best procedure, since it allows reaching a "quasi constant" behaviour of the controlled sys-me. TWM is specially suitable for electric heating, pump con-trol or when electrothermal actuators are used. In those cases which a direct burner control, or in hose applications where the fact of exceeding or failing below a temperature is reported, the ON/OFF control should be used.

The Optimum Start applies only to the heating-up stage. The device is switched off (in the lower temperature direction) at

For PWM: During the heating-up stage, 100% heat is required. Immediately before reaching the setpoint temperature, the control changes to proportional heat demand. For ON/OFF control: 100% heat is supplied until the setpoint temperature is rea-ched. After that, heating is switched off.

6.7 Optimum Start b.7 Optimum start The device automatically determines the time when the hea-ting process must begin in order to reach the required room temperature within the set time. Setting: menu [®], position 1, see 6.1 The control calculates the pre-heating time from the time of the last heating-up based on the current temperature diffe-rence (see notes a, b).

the progra