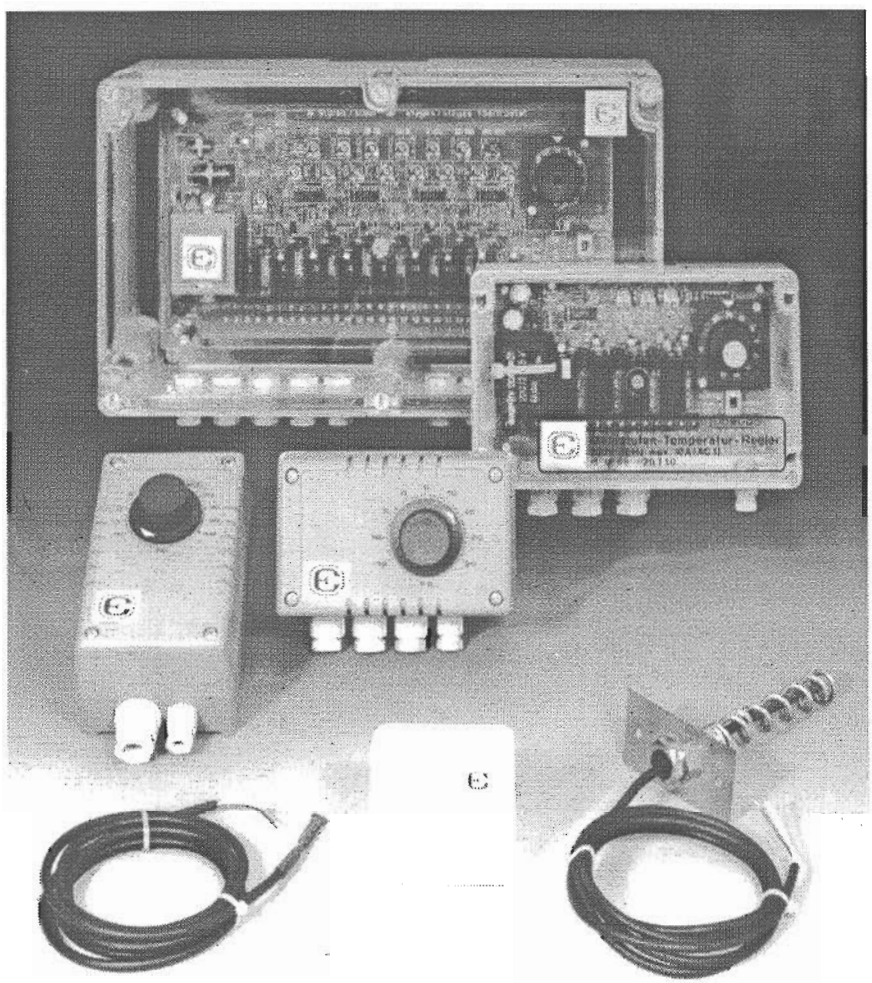
ENGELTHERM®

Electronic Temperature Control

Economical and Convenient Temperature Control

for ENGELS Electric Air Heaters in Heating, Air Conditioning and Ventilating Systems

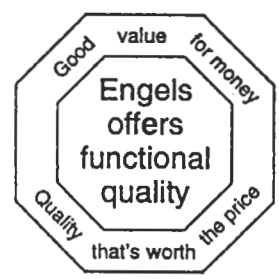


Engeltherm® temperature control units with electronic design

Room or duct temperature regulator for 1-8-staged control, with the smallest temperature deviations, for individual room control

- **energy saving**
- **convenient**
- **practical**
- **universal**

CE



With room sensor as convenience version.
Air duct sensor for duct installation.

Regulator for wall installation or switch cabinet installation

Higher ranges, up to max. 368 K on request

Extensive standard product line available ex works.

With electric heating, correct temperature-dependent control provides ideal thermal comfort, or precise attainment of desired values, even when personal requirements and economical factors come foremost.
Engeltherm® electronic temperature control units allow stage-by-stage temperature control of electric air heaters with the smallest possible temperature deviations between desired and actual values.
We offer you an economical solution without loss of convenience

ENGELTHERM® - the better solution

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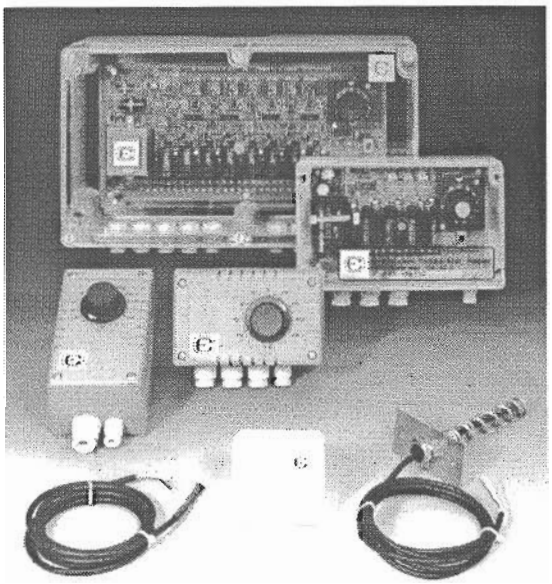
Electronic Temperature Control



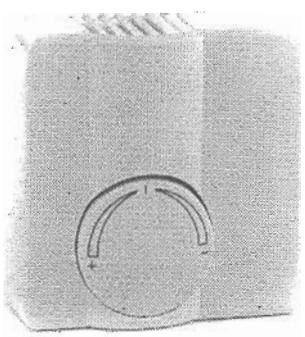
ENGELTHERM®

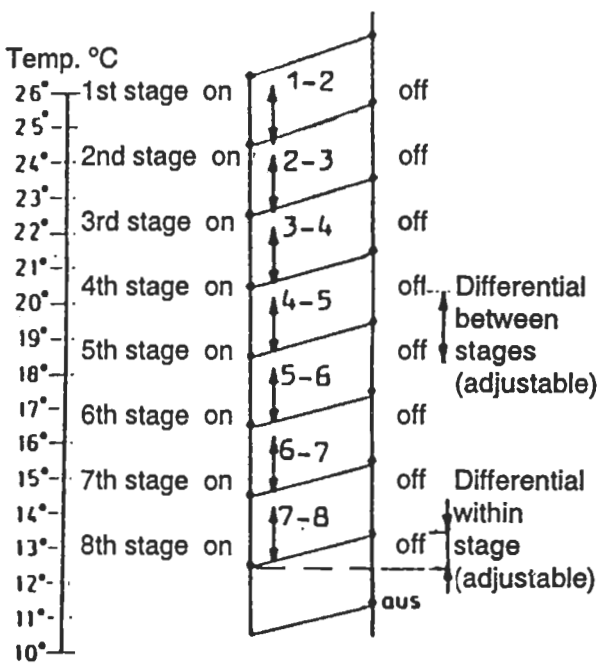
Electronic Temperature Control Units

CE

A completely new dimension, with a multitude of uses - as constant air feed temperature control, as recirculating air temperature control for individual rooms.
For well moderated air and controlled energy consumption.
Optimal solution with additional use of differential control type EDR 500.

Functional example:
Unit Type ET 800
Switching from 8 stages and a nominal value set to +26°C/299 K.
Information
Other temperature ranges than the following available on request.
Some units are available with adjustment up to +95°C, type ...../SH.
With temperature ranges up to +95°C, the room sensor type RTF-3/P can be used with a potentiometer as remote adjuster, approx. ± 3.5 °C. Colour: beige





We offer you practical software in the form of extensive circuit information.
Regulation wiring and connection diagrams are not included in our product line, however.
The specified switch boxes must always be structurally provided.

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3-4-staged Temperature Control Unit Type ET 400

Technical data

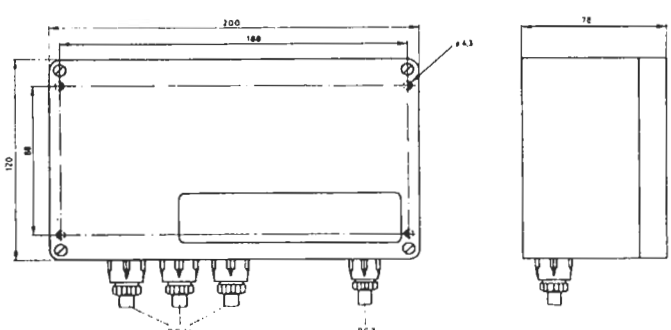
Dimensions:	as in illus.
Voltage:	230 V/AC - 50/60 Hz
Breaking capacity:	4 x 10A
Adj. range:	263 - 323 K (-10 to +50°C)
Switch differential:	between stages adjustable 0.5 - 6 K within stages 0.25 - 2 K
Adjustment:	internally by scale
Switch element:	change-over switch
Connection:	acc. to circuit diagram
Protective system:	acc. to DIN 40050 IP 65
Ambient temperature:	housing 253 K - 328 K (-20 to 55°C) sensor 253 K - 343 K
Design:	industrial
Option:	digital thermometer type JDI-0 can be connected as display unit. With differential control type EDR 500, minimum limiting of supplied air temperature.
Special version:	G = without housing F = without housing with DIN rail bracket and detached nominal value potentiometer, with 1 m cable

Installation
Every installation position is permissible.
For installing and wiring remove cover.
Installation holes lie below the cover. Never remove adjusting knob, as otherwise scale deviations can occur.

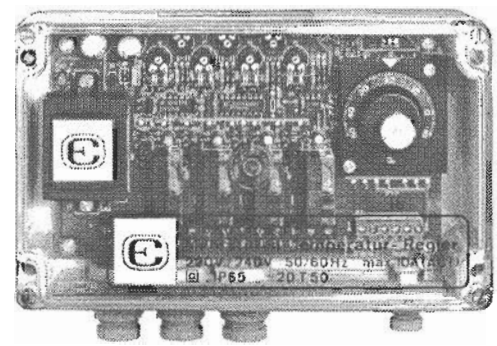
Design
Plastic housing, with NTC sensor, acc. to description.
When using as room thermostat, shorten sensor cable and tighten sensor in the PG screw connection (photo type ET 200), or use room sensor housing type RTF-3.
Unit can be installed on the wall or in switch cabinet.
With connection for digital display (4 wire sensors).

Functioning/Note
The temperature regulator is generally used as a remote switch for power and control protection.
Smaller outputs (up to max. 2 kW) can also be directly switched.
Extension of the sensor cable to 50 m is possible, but only with shielded cable. Never remove adjusting knob, as otherwise scale deviations can occur. The sensor can be replaced, without calibration.
Use only sensors designated as no. 3.
Connect all duty cycle plugs in position H

Adjust switch differential when starting operation



Electronic Temperature Regulator Type ET 400 (3-4-staged) CE

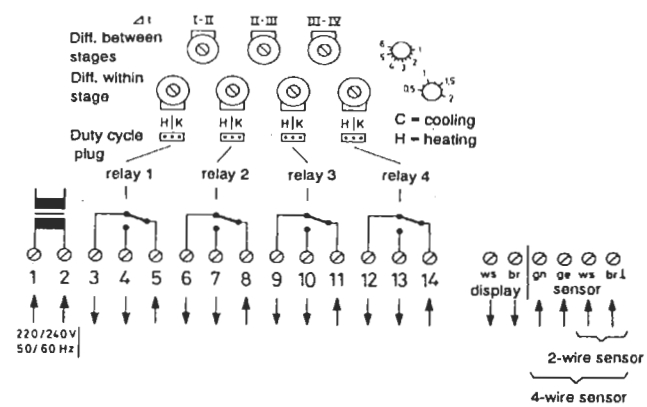


The NTC sensor measures the actual value, which is then compared with the adjusted nominal value in the regulator. Depending on the temperature deviation, the stage switch is automatically actuated.
The nominal value is the adjusted scale value and cut-off value of the 1st relay (4th heating stage).
The 4-stage version can be used with 3 stages, in which case the 4th stage cannot be wired (relay 1).

ETF-3
Detached sensor, with cable 1.5 m long (2-stranded)
NTC sensor is cast waterproof in a sleeve.
Resistance at 293 K (+20°C) = 9993.85 Ω.

Duct sensor type ETS 120-3
Sensor with protective coil, 120 mm, for duct installation. Protective coil flange 80 x 40 mm. Protective coil material St/nickelled. Sensor fastened with polyamide cable tape. With extended sensor cable, a commercially available branch connector can be used.
Install the sensor in the duct so that the sensor's tip lies in the air flow to be measured. The distance between sensor and heat exchanger should be at least 1 m.

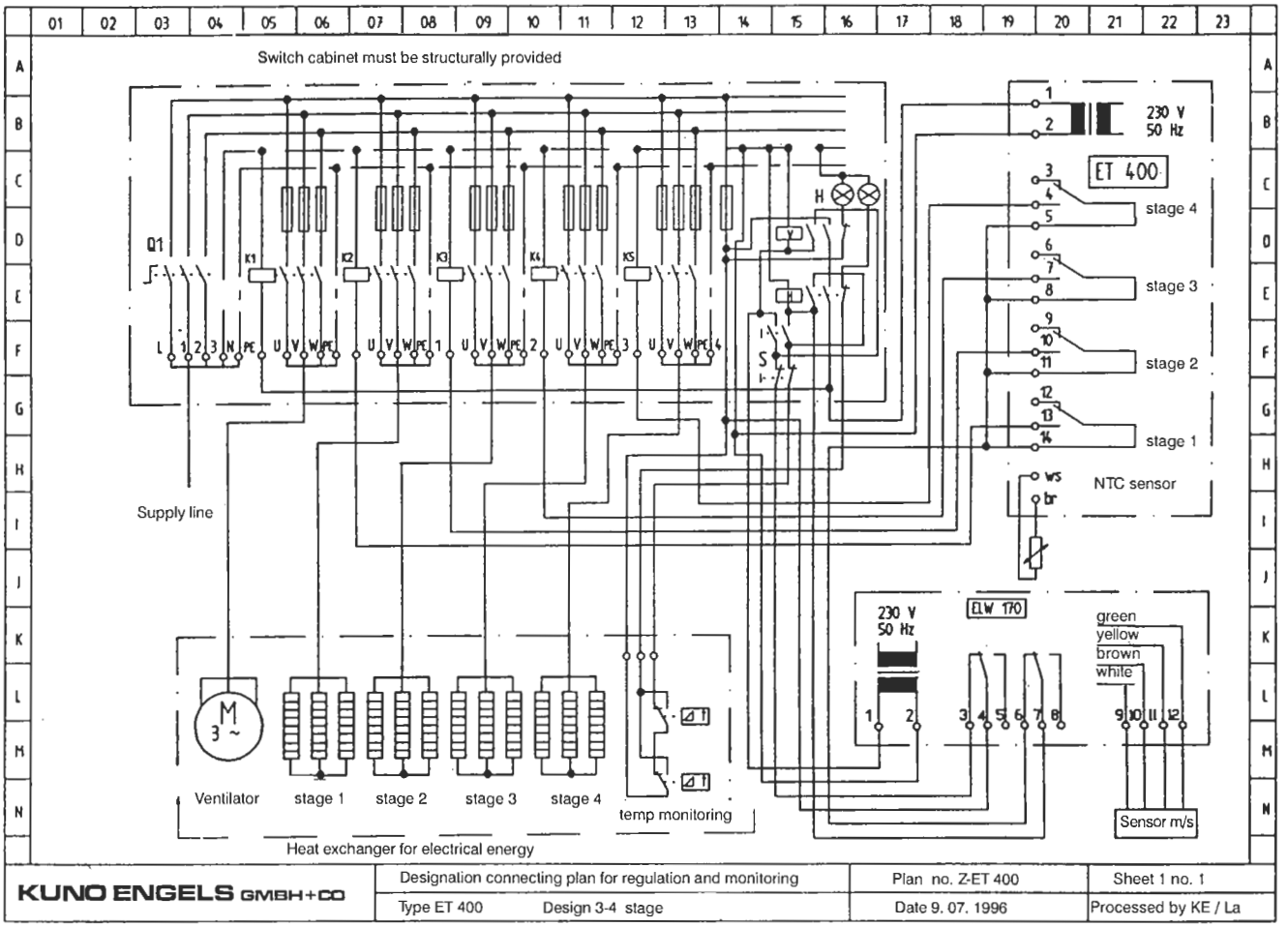
Room sensor type RTF-3
Install the room sensor so that any room temperature fluctuations can be well registered. Avoid installation in the vicinity of heating cores, doors, windows and fireplaces, etc.
Colour: white



All data according to present knowledge, subject to revision.
Regulation wiring and connection diagrams are not included in our product line, however.
The specified switch boxes must always be provided structurally.

KUNO ENGELS Vertriebs-GmbH
Electro-technical Manufactures
Hauptstraße 42 - D-42799 Leichlingen
Telephone: 0049 / 2174 / 790 00 - Telefax 0049 / 2174 / 790 010

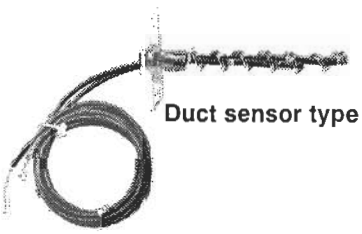
Connection plan, control and monitoring, for structural connection



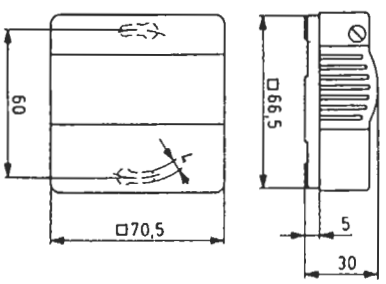
Room sensor type RTF-3

Functioning of heater

1st stage = terminals 13 + 14 make contact (relay 4) (12 = signal contact)
2nd stage = terminals 10 + 11 make contact (relay 3) (9 = signal contact)
3rd stage = terminals 7 + 8 make contact (relay 2) (6 = signal contact)
4th stage = terminals 4 + 5 make contact (relay 1) (3 = signal contact)
Connect all duty cycle plugs in position H.
The nominal value is the adjusted scale value and cut-off value of the 1st relay (4th heating stage).



Duct sensor type ETS 120-3

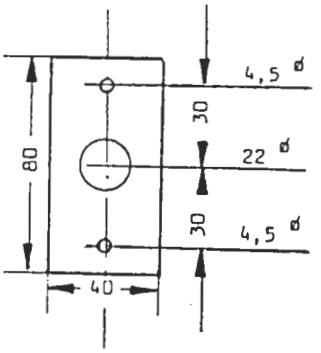


Room sensor type RTF-3/P like RTF-3, but with potentiometer as remote adjuster ± 3.5°C. (Scale without temperatures)

Unit type ET 400/SH

Range: + 35 °C to + 95 °C
308 to 368 K

Drill scheme for duct sensor



Varied uses often require other circuits as here diagrammed.
Always note the required safety measures, however, acc. to our information bulletin no. S 20.