ThermoControl Plus

Correct energy management means low energy costs.

ENERGY EFFICIENCY made in Germany

Schwank
INNOVATIVE HEATING SOLUTIONS

Intelligently controlled -
Economically heated

1 **Precision:** Precise control saves energy. Special sensors consider the ambient as well as the radiation temperature.

A modern controller thinks ahead

A heating system is only as effective and economical as its controller. Under this premise, Schwank engineers have developed ThermoControl Plus. In order to ensure an energy and environmentally friendly operation of the heating system an intelligent controller must be able to adapt to specific building characteristics, i.e., warehouses, production facilities, work shops, distribution centers, hangars or sports facilities. Another important factor this smart controller considers is the ease of use.

State of the art technology

Practical modules and a self-explanatory menu facilitate the daily use of the heating system. In combination with the Schwank building management system [BMS] ThermoControl Plus represents the future of control systems for industrial buildings. ThermoControl Plus and the communication modules for remote access or building management system can be retrofitted quickly and easily to existing Schwank heating systems.

User friendly

Practical. Flexible. Robust.

1 **Secured:** Each controller is lockable; the remote access module is protected with a password to avoid unauthorized access.

2 **Practical:** The heating temperature is simply set with + / - keys to the desired value. Just as easily, different holidays or shift times can be set.

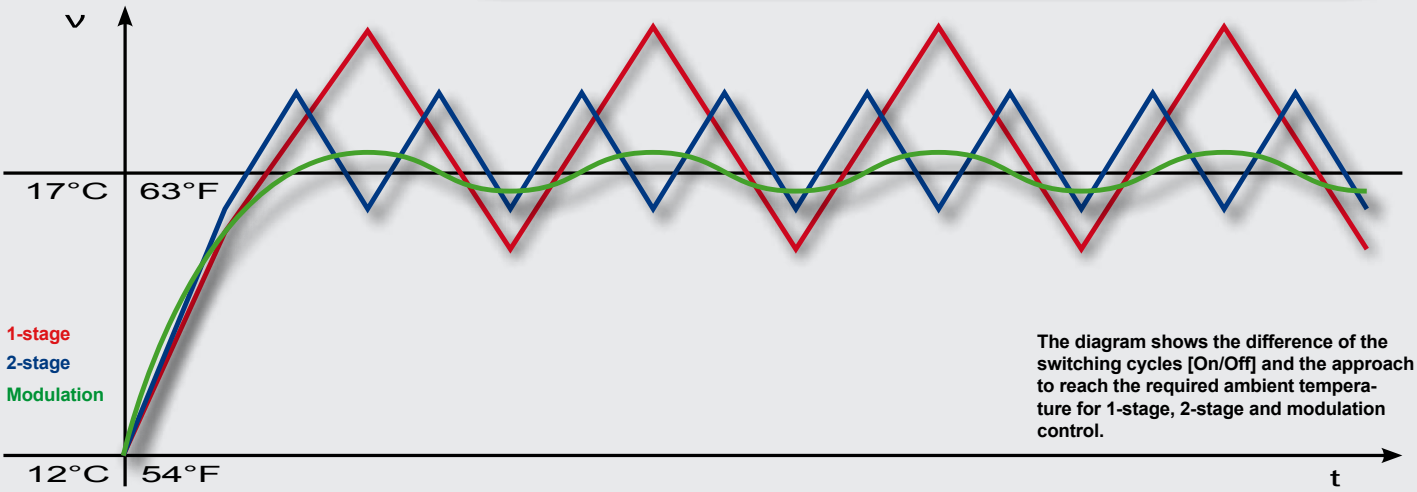
Easy operation included

The operation of ThermoControl Plus is simple and intuitive. Quickly and clearly, day, night and frost temperatures can be added or amended and the well-arranged display provides all the relevant data. Using comprehensible icons, the operator can immediately recognize the operating stage of the heating system or the individual heating zone. By pressing a button, all nominal and actual values can be queried and changed in seconds. In order to react and be flexible to unscheduled overtime work, the heating period can be easily extended for a specified period of time. With this manual heating time extension, the programmed heating times of the controller must not be changed.

ThermoControl Plus also allows the implementation of an external alarm contact in an existing building management system or an external fire alarm system. The robust and shock-resistant controller is designed for tough industrial use. Because of the protection class IP 65 even high humidity and extremely dusty room conditions will have no impact on the ThermoControl Plus. All components are CE-certified and suitable for tough continuous operation.

Switch-on optimizer

Controlling the costs



The diagram shows the difference of the switching cycles [On/Off] and the approach to reach the required ambient temperature for 1-stage, 2-stage and modulation control.

1 Saving:
The smart and "learning" logic module saves immediately money. The ideal switch-on time is calculated automatically.

Switch-on optimization saves money

If the heating system is not running, it consumes no energy. With the integrated function of the switching time optimization the operating time can be reduced to the necessary minimum. The optimal switching time is reached when the heating system ensures the desired room temperature at the start of the shift or working time. Not before. Not later. ThermoControl Plus has an intelligent "learning" logic module that considers the environmental effects of indoor and outdoor temperature to determine the optimum warm-up time. The switch-on optimization is done separately for each circuit. Therefore, ThermoControl Plus is able to identify the ideal switch-on point of time for each heating zone.

To the operator, this has significant advantages. The programmed data must not be adapted to weather periods. Because ThermoControl Plus accesses real weather data, it is more accurate and therefore saves energy.

Modulating Control Included

ThermoControl Plus controls the heater in 1-stage mode. Optionally, it is available for either 2-stage control or fully modulating use. Therefore, the heating power is intelligently adapted to the actual need of heat for the building. This saves, in the two-stage mode, up to 8%; in modulating mode even up to 15% of energy costs. Cycling [on/off] can be reduced by up to 35% increasing the life expectancy of the heaters significantly.

Operation

Whenever and where ever you want

Flexibility "Made by Schwank"

ThermoControl Plus has an interface function to control the heating system. With the optional remote access and the communication card CM232 the controller can be controlled via modem or fixed-line connection. This allows easy monitoring and control of each heating / control zone. ThermoControl Plus can therefore be connected with the company intranet. All functions of ThermoControl Plus, as well as the temperature profiles of the last 24 days, can be monitored and controlled easily. With this function the heating system can either be controlled directly at a central location or even from a remote location. All logs can be archived for complete heating system documentation.

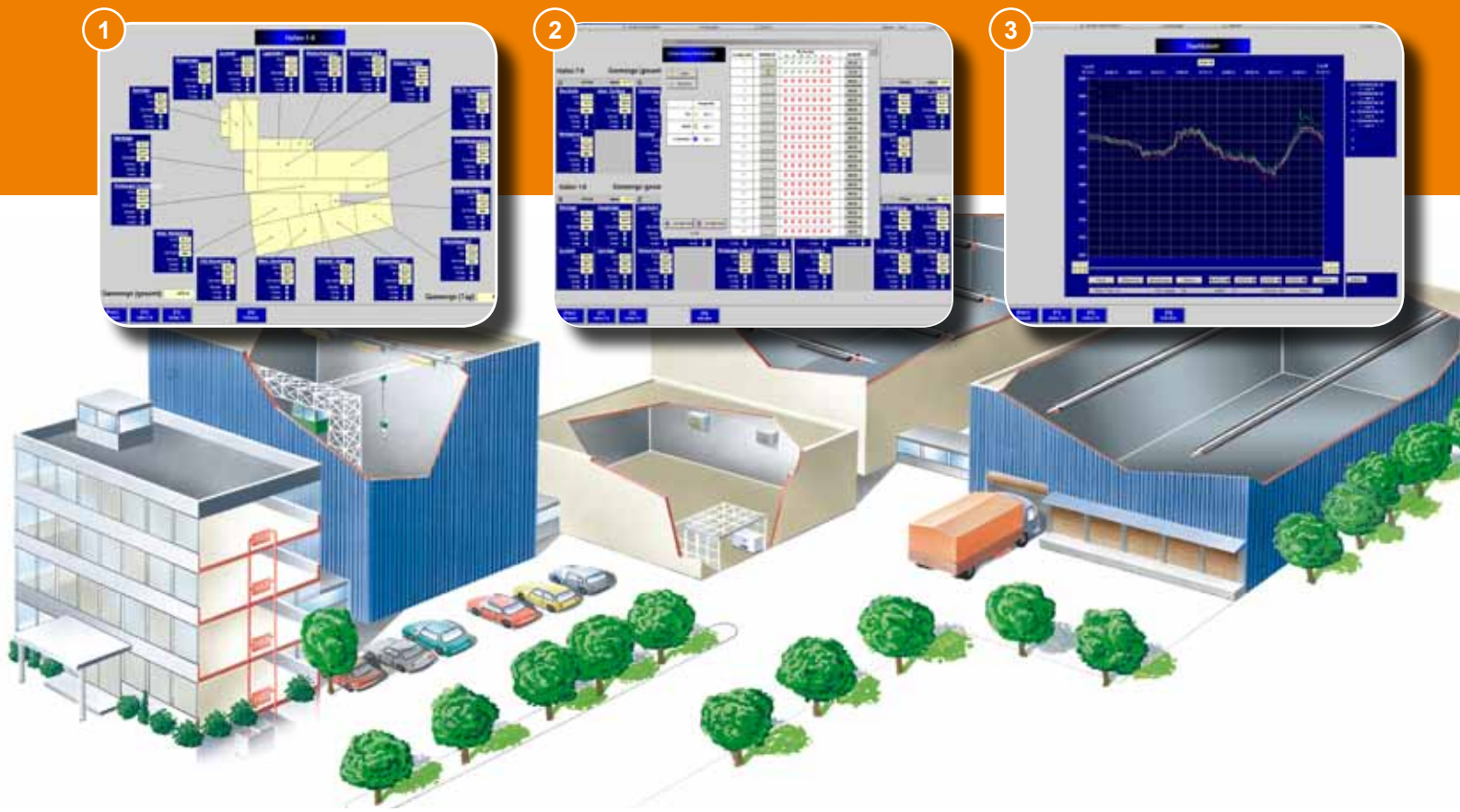
Communication Module CM232

- Easy installation on ready slot and automatic detection of the interface card
- Integrated data for temperatures and heating times of the last 24 days
- Central control via PC inside the corporate network by connecting to a TCP / IP modem
- Easy handling of software

1 **Independent:** Interface connection in the office, at home or anywhere in the world - ThermoControl Plus can be operated from everywhere in the world.

Building Management System

The future is here



1 **Comprehensive Overview:** Heating periods of each individual building can be displayed clearly.

2 **Control:** Setting each temperature zone separately.

3 **Monitoring:** Temperature characteristics can be saved and stored for analysis and evaluation.

Suitable for Building Management

With the communication card CM485 the complete heating system, inclusive of the controller, can be embedded into complex building management software. Various buildings can be controlled and monitored centrally. If a building management system is already set up, ThermoControl Plus can be fully integrated. Each common building management software [e.g., Siemens, Honeywell, Johnson Control, Kieback & Peter, Sauter Cumulus] or fire detection systems are supported.
Optionally, ThermoControl Plus can be supplied with a specially developed Building Management System by Schwank. In this professional software application facility management can adjust and monitor all heating parameters comfortably and run statistical analysis on operating times and switching cycles.

Via a secure data tunnel [VPN] the building management system can also be accessed by the Internet.

Communication Module CM485

- Easy installation on a ready slot and automatic detection of the interface card
- Several ThermoControl Plus can be linked with each other; data transmission via Modbus data cable
- Open interface programming, therefore easy integration into conventional building management systems is possible
- Optional: monitoring and control functions through customization of the software

Technical Data

At a glance

ThermoControl Plus	
Relais output:	▪ Up to 8 relais [1 to 8 heating zones] ▪ Up to 4 fan relais ▪ 1 error relais
Load:	▪ max. 10A 230V/50Hz [inductive]
Input:	▪ Temperature sensor: 2-wire connection ▫ Room temperature sensor ▫ Outside temperature sensor ▪ Connection input: zero-potential contacts [closed, when unused] ▫ Alarm contact ▫ Remote: Daytime operation stage, Remote contact or signal input failure
Setting range:	▪ Each zone individually adjustable ▫ Day +3…+35°C [+37.4 …+95.0°F] ▫ Night +3…+35°C [+37.4 …+95.0°F] ▫ Frost protection +3°C…+20°C [+37.4…+68.0°F]
Holiday program:	▪ 8 programmable time periods
Controller:	▪ 1-stage, 2-stage or modulating, selectable hysteresis: +0.2 … +2.0°C [32.4 … 35.6°F] ▪ Proportional range [only for 2-stage controller]: +0.5 ... +3.0°C [32.9 … 37.4°F] ▪ Integral coefficient [only for 2-stage controller]: 10 … 99 minutes ▪ Sensor adjustment: -9.9 … +9.9°C [14,2 … 49.8°F] ▪ Fan delay time: 0 … 60 minutes
Clock, Calender	▪ Power supply clock: Battery 1.5V AA; Life duration: approx. 3 years ▪ Automatic Summer/ Winter time switch-over: +/- 1 hour
Time program:	▪ Independent week program per each heating zone: 19 switch points ▪ Stored in protected EEPROM memory
Voltage:	▪ 230V/50Hz, N, PE, Pmax [control]: 3.2 VA
Fuse:	▪ F1 5x20mm 6,3 A [Standard]
Safety standards:	▪ EN 601010-1, EN 55011, EN 50082-2
Operation temperature:	▪ 0...+50°C [32 … 122°F]
Storage temperature:	▪ -10 ...+60°C [14 … 140°F]
Protection class:	▪ IP65 [Dust and splash water protection]
Housing:	▪ Plastic housing with clear closing door, lockable ▪ UV resistant

Interface card	CM232 Remote access	CM485 Building Management System
Connections/ Programming:	▪ separate connection box with two 9-pole D-Sub connections [PC, Laptop, Modem]	▪ open interface
Register:	▪ 16 bit	▪ 16 Bit
Backup:	▪ manual	▪ automatic data storage
Storage:	▪ EEprom 128 kByte	▪ system orientated through BMS
Format:	▪ 8 data bit [ASCII text]	▪ RTU 8 bit or ASCII 7 bit
Bit Rate in bit/s:	▪ 600, 1200, 2400, 4800, 9600, 19200, 38400	▪ 600, 1200, 2400, 4800, 9600, 19200
Device address:	▪ automaticaly generated	▪ from 1 to 247 free selectable
Transfer control:	▪ RTS/CTS, halbduplex	▪ --

Optional equipment	
▪ Software component Building Management System ▪ Remote access module incl. ▪ Communication card CM232 ▪ BMS mdoul incl. ▪ Communication card CM485 ▪ Outside and room temperature sensor	▪ Button for manual heat period extension ▪ Zone Error Box ▪ Humidity sensor ▪ Coin-operated machine up to 999 minutes ▪ Clock timer ▪ Photo-electric barrier

ThermoControl Plus

Your advantage

The Benefits

- 2-stage or modulating mode possible
- Independently determined optimum warm-up period [start-up optimizer]
- Remote access optional
- Integration into corporate intranet or Building Management System possible
- Substantial impact on energy savings; environmentally friendly
- Simple operation
- Self-explanatory menu
- Short access times to all major adjustment parameters
- Stores and protocols heating parameters
- Suitable for retrofit installations of Schwank heaters

Experience Creates Safety

Schwank is known as a synonym for high quality and energy-saving industrial heating systems. As the market leader of gas infrared heaters Schwank has extensive experience in the development, production and implementation of heating systems. 150 000 satisfied customers and two million units speak for themselves [see references at www.schwank.de].

Being a German manufacturer, we stand by our claim to deliver products and services with the highest possible quality. Providing energy saving and CO_2-minimizing products is the foundation of our philosophy.

Innovative. Experienced. Competent.

Großer Preis des Mittelstandes

INDUSTRIE PREIS 2008

Grand Award of German Foreign Trade 2009 - 2nd Place

Federal Ministry of Economics and Technology · ZDH · BDI · DIHK

Handelsblatt Top 100

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