

The Power Lies in the Details

Mechatronics – Expertise in Controls and Modules



Contents

For many years, Cherry microswitches and keyboards have been synonymous with quality and reliability. However, Cherry is also a leading supplier of electronic components. Whether in household appliances, industrial applications, vehicles or input systems, electronic components ensure reliable functioning as well as safety and comfort. Our Quality Assurance System is ISO 9001 and TS 16949-certified and our Environmental Management is ISO 14001-certified.



Winner 2005

This catalogue is intended only as procedure documentation. No responsibility is taken for the correctness of the details. We reserve the right to make changes which are minor or serve the purpose of progress. The technical details relate only to the product specifications; product characteristics are not warranted. We reserve the right to make technical changes and adjustments due to changed delivery opportunities up to the contract signing. Only our general sales and delivery conditions apply. We will gladly send you these on request.

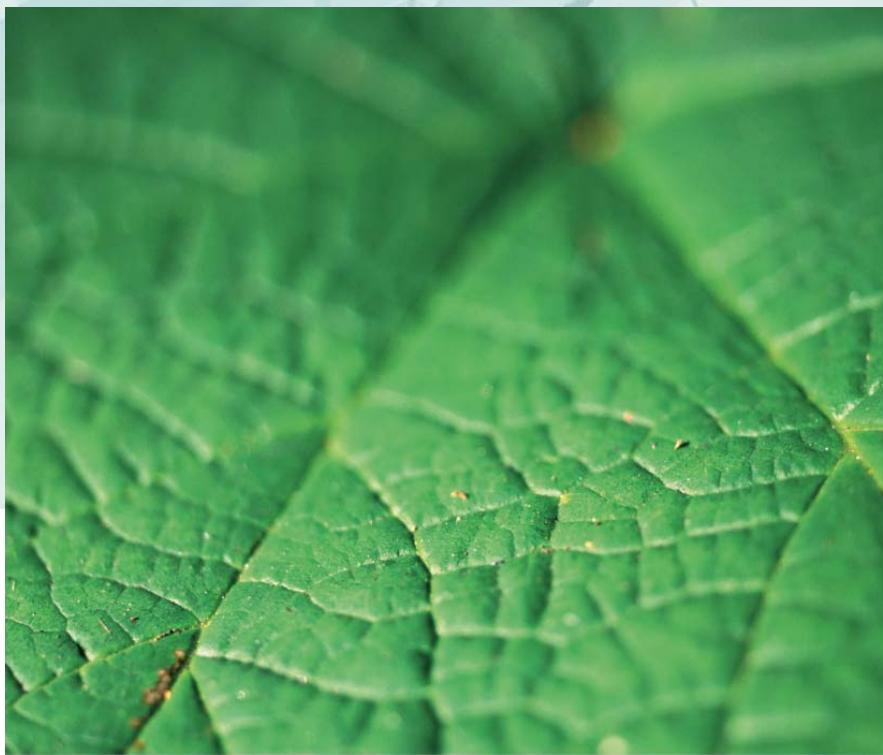
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Contents

It's not the size which determines the power, but rather each individual component.

What makes the difference between a good and an excellent technical solution? Reliability, the power of innovation, with such a head start - anyone can name the result. But how can this be achieved? Is there a formula which can be transferred to all industries? We think there is.



The quality of a total solution is determined by the quality of its components. A fault in a component which only costs a few cents can paralyse everything. Perfection down to the smallest detail is therefore a basis of our philosophy as a supplier of mechatronic components. Another is attuning the individual elements optimally to one another. Therefore, we see ourselves as our customers' active partner when it comes to developing new products.

Our record proves we are right. For many years, mechatronic elements by Cherry have been synonymous with the highest quality and reliability. This principle has also made us one of the leading suppliers of electronic components. Regardless of whether you use our products in household appliances, industrial applications, in the automobile industry or for input systems - you can rely on safety and comfort in addition to reliable functionality.



Customer satisfaction grows with quality. And quality with proximity to the customer.

With ever-shorter product cycles, the development time for new products is also being reduced. In order to guarantee maximum quality nevertheless, close cooperation among all partners is important. We interpret the term „close cooperation“ in an old-fashioned way - and insofar as possible, we prefer personal contact with our partners.



To be as close to our customers as possible was the principle of Cherry Electrical Products Corporation, which was founded in the USA in 1953. In 1964 we established a subsidiary in Germany and in 1972 in England. In the meantime, our locations in Europe include France and the Czech Republic, and they employ approximately 2,000 people. Proximity on location allows us to react quickly to regional or individual requirements.

And this is a part of our recipe for quality, which enabled Cherry to generate revenue of EUR 200 million in Europe in 2005. Further locations will also depend on you. With our flexible production network, we are in a position to react to customer and market requirements.

Success doesn't come from the clear blue sky. It's the result of ideas and foresight.

Growth and success across more than 50 years are no accident, but the result of a sustainable company strategy. A strategy which is applied equally to customers, employees, our own products and the environment. And this guarantees that our innovations will fall on fertile ground in the long and short term – and it will ensure growth for us and our partners.



Global values

Cherry Corporation associates are focused on achieving the Global Vision through:

- Documentation, communication, and implementation of the Global Vision to all stakeholders including customers, suppliers, employees, investors, and any interested parties
- Establishment and review of measurable goals and objectives that support our Global Vision and Values
- Continual improvement in everything we do as a means of reducing cost, improving quality, and delivering superior customer service, all with the goal of providing enhanced value to our customers
- Uncompromising compliance with all applicable worldwide and local health, safety and environmental requirements and regulations with a focus on pollution prevention
- Encouragement of open and active participation by stakeholders worldwide to ensure success

Quality and environment:

For us, environmental consciousness is more than the fulfilment of a duty; we live it every day. Therefore, years ago we introduced an integrated management system based on the ISO 9001, ISO 14001 and TS 16949 standards, whose quality and environmental standards have become second nature for our employees. In order to comply we must fulfil and even exceed the requirements of our customers, suppliers, investors, employees and, last but not least, the public, through consistent process orientation.

Cherry Auerbach was awarded the title „Factory of the Year 2005“ as a testimony to this achievement.

Growth, innovation and environment

Expertise in high-tech. And in the household.

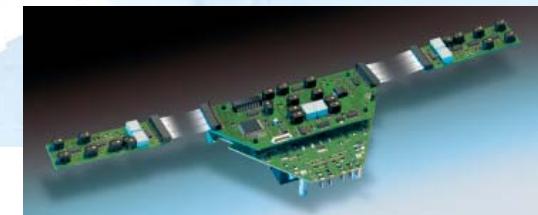
A multitude of appliances make housework easier today. Cherry is a leading international supplier with many years' experience in developing and manufacturing electronic components and switch solutions for the household appliance industry. Whether for cooking, baking, dishwashing, washing clothes or in the sanitary sector – discrete Cherry components, switches and controls help in many applications.



Radio remote control with temperature display for sink heater



Backlit input and display unit for tumble-dryer



Customer-specific cooktop control with combinatorial circuit part

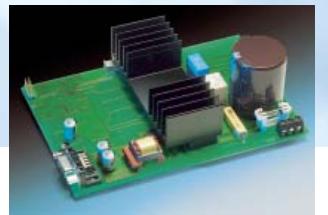
Leading manufacturers in the household appliance and consumer goods industry are among our customers. One of our special strengths is innovative input units: backlit, splash-proof operating panels with precisely-defined tactile response and free arrangement of the keys. The largest standard selection of pathless operated touch control controls in patented infrared technology with integrated, modern combinatorial circuit parts. Rotary selectors on an inductive contactless basis, which detect the switch setting and enable a completely free layout on the switching point number and angle. From this and with our expertise in the areas of cooking, baking, washing and drying clothes and dishwashing, we develop and manufacture application-specific regulations on electronics and program controls.

For example, you will find our products in modern vitroceramic cooktops with contactless operation and integrated display, which make cooking safer and more comfortable. The infrared touch control controls all necessary processes and prevents faulty operation with intelligent sensor evaluation. The integratable automatic pot detection disables heating without a pot, thus making your household safer and saving electric energy. Additional areas of application for our products are tumble-dryers. With the input unit, various drying programmes can be selected. Displays inform the user about the current programme status and the remaining time. The modern microprocessor control evaluates sensors and input information and ensures an efficient, smooth, time-optimised programme flow.

Cost-effective and reliable radio wave technology as in the keyboard sector is making increased inroads into our products; for example, there is a remote control for inputting and displaying the water temperature of a sink heater. Our expertise profile is rounded out with electronic 3-phase induction motor controls according to the space vector modulation process as they are used in modern washing machines.



Control for automatic pot and pot size detection



Motor control for washing machine

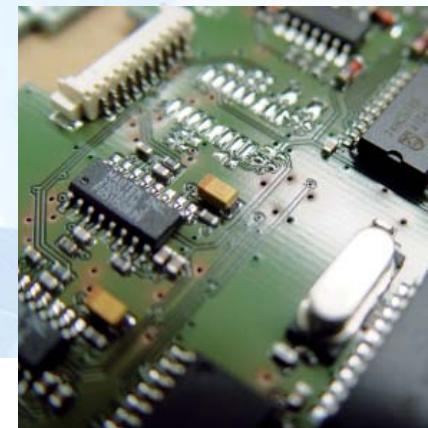
Expertise in high-tech and household

Comfort and safety, which can no longer be dismissed from your thoughts. In all areas of life.

Our electronic components enable not just more functionality, time, energy and resource efficiency in the household; they also contribute to greater comfort and security. In industry, data technology and in automobiles, our expertise is the basis for many innovative solutions.



Production



Dynamic bus systems with distributed intelligence simplify the construction of flexible controls. Position control systems with memory function enable multi-axis control of comfort seats in automobiles, in the furniture industry and for adjustable sickbeds. To replace circuit boards, proven, plastic-coated metallic lead frames are used for the three-dimensional construction of components. They integrate the function of the bearing housing parts with the electric connection of the components and the plug connections. Alternatively, we solder electro components such as sensors directly onto flexible printed circuits (FPC). Intelligent access control systems prevent the unauthorised use of computer systems and access to rooms.

Building blocks for the digital signature and thus the highest data security are magnetic and smart card readers and fingerprint recognition, which combine easy access with maximum security. More comfort is also a feature of our newest keyboards, which in addition to ergonomically-optimised operation and new additional functions also offer other components, e.g. integrated solar cells or touch pads with which they can be equipped, and which stay in contact with the PC via radio (currently up to 2.4 GHz).



Mouse with capacitive fingerprint sensor



CyMotion PRO wireless keyboard with wireless mouse



Sensor component for braking assistant



Injection-moulded lead frame in the side door handle for remote module of keyless entry system

Comfort and safety

Innovative technology. For the innovations of tomorrow.

The basis for our product development is our developers and engineers' experience with mechanical engineering and electronics as well as their knowledge about the special requirements of the application. Project management and simultaneous engineering enable them to work quickly and effectively.



Computer-based layout development

Our strengths:

Input and contact technologies:

- Switches, contacts, foils, rubber mats

Contactless information transmission:

- Coded FM-
- Transponder-
- Bluetooth-
- wireless transmission, e.g. for remote controls, systems for access authorisation or data exchange

Access control:

- Electronic fingerprint recognition

Bus systems:

- CAN-, FlexRay®, LIN-, I2C, Microwire-, Power Line,- Bluetooth- and individually-developed bus systems, e.g. for automobiles and household appliances

Display systems:

- Customer-specific LED displays
- Backlighting using reflectors and light conductors
- Fluorescent displays
- LCD graphic displays

Sensor systems:

- Hall sensors
- Inductive sensors
- Capacitative sensors
- Optical sensors

for the detection of positions, length and turning movements, but also for the recording of images, e.g. for fingerprint recognition.

Our resources:

- Data exchange via OFTP/ENGDAT

- Finite element calculation

- Injection-moulding simulation for plastic components
- Computer-supported circuit simulation, magnetic field calculation and high-frequency simulation

- Layout development for SMD, Chip on board, Flip Chip and other micro-assembly technologies

- Development of cost-effective customer-specific circuits even in the high-frequency range, e.g. for wireless units

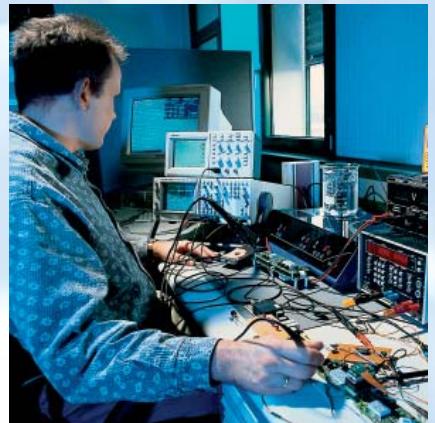
- Software development for 8, 16 and 32-bit micro-controller, also using operating systems such as RTOS and OSEK

- Lengthy experience in the development of mechatronic systems in mechanical engineering, hardware, firmware and software.

- Mechatronic development according to SPICE / ISO 15504



Magnetic field simulation



Flexible measuring station for testing development samples



Product qualification under real operating conditions

Innovative technology

Our products have already survived a lot. Especially in our test laboratory.

In a multitude of tests, our new developments must prove their reliability and long service life. In special test stations, we conduct qualifications of components and materials with respect to their suitability for our products as well as development-related measurements and tests of complete products.



Series-accompanying lifespan and reliability tests of electronic components for tumble-dryers

Environmental simulation

Functional tests and lifespan tests for heat, cooling and humidity as well as vibration and shock tests.

Tests of the electromagnetic compatibility (EMC)

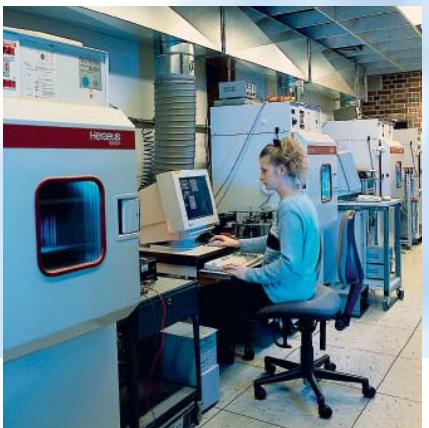
Whether line-related or externally-produced fields and impulses, our components must work surely and reliably even under the influence of electromagnetic interference. Therefore, we conduct ESD, burst and surge tests as well as power failure tests in-house. On the other hand, our components may not interfere with other devices. Therefore, we make exact emission measurements.

Reliability and lifespan tests

Electrical and mechanical durability tests under normal and increased operational requirements also with ageing simulation, e.g. due to temperature loads, monitor adherence of the calculated values for reliability and lifespan (MCBF -> MTBF). Here all partial functions are regarded: whether IR diodes or switch transistors.

Authorisations and certifications for safety and EMC:

Test for approval by the global testing stations and for customer-specific certifications (VDE, KEMA, UL, CSA, etc.) Creation of the prerequisites for applying the CE seal of approval.



Lifespan and reliability tests under adverse environmental conditions

As flexible and efficient as our products: our production

Our mechatronics manufacturing: the components are produced on modern assembly lines. Latest generation SMD insertion robots place fine-pitch components on circuit boards with absolute precision. The panels are automatically separated on equipment integrated into the line.

We master new technologies such as chip-on-board without a problem. Conventional, wired components are wave-soldered in nitrogen for a controlled, high-quality result. Linked assembly lines with integrated material handling systems, laser labeling equipment, testing and measurement stations deliver outstanding, consistent results. 100 % performance testing extended to include in-circuit testing, helps to guarantee the quality of the delivered product. The high degree of automation is the basis for economical production and thus for a competitive price level.

The most important success factors are, now as before, our employees, who work in self-guided, autonomous manufacturing groups. Ongoing training ensures that we always work according to the most modern methods and knowledge. Flexible work schedules enable on-demand production and increase our ability to react with respect to delivery times and last-minute modifications. Our employees are themselves entirely responsible for the quality of their work, they optimise the process flows individually and they always strive to improve.



Switch manufacturing



Highly-automated production



SMD circuit boards, assembly with automatic visual control



SMD assembly line with automatic PCB separation

IR touch control – controls for household appliances

IR touch controls

With many years of experience, Cherry develops and manufactures IR touch controls as electronic switch solutions for the household appliance industry. We count all famous manufacturers among our customers. Areas of application for our touch controls in the hot sector are all types of vitroceramic cooktops and ovens for which the greatest degree of comfort and safety is offered. Applications are offered standard and customer-specifically. All of our company's services are secured by a DIN ISO 9001-certified quality management system.



IR sensor technology

Cherry's patented sensor system for the touch controls sends infrared light through the vitroceramic surface. During operation, the infrared light is reflected, a microcontroller evaluates the reflection. Software detects whether the operation is intentional. Faulty operation, e.g. caused by cleaning, children, pots which have boiled over, pets or foreign light is excluded by intelligent software. Based on the optical principle, the controls are not sensitive to humidity, electromagnetic or other influences. Cherry IR touch controls calibrate themselves automatically after they are connected to the mains supply. During operation, the sensors adjust independently to changed light conditions, and thus remain operable at all times.

Slider technology

To make the operation of cooktops still easier and more comfortable, Cherry has developed a completely new generation of operating sensors for cooktops based on infrared technology. With the slider technology, a new type of IR sensor line enables both, the selection of the heater and the choice of the heat setting with the single touch of a finger. By sliding a finger on the operating line, the heat setting can be varied constantly without having to enter repeated commands to turn the heat up or down. The patented technology is thus not just easy but self-explanatory for the user. It was just as important to the developers to ensure the robustness with respect to foreign light and temperature and the excellent sensitivity of the sensors for which Cherry is known.

Cooktop controls

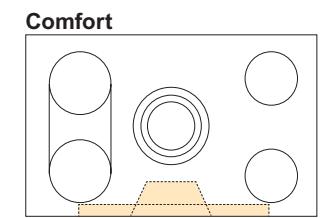
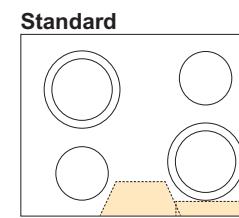
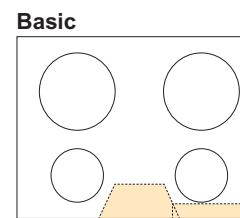
Application

Our standard comfort modules were developed for the contactless operation of vitroceramic cooktops based on infrared technology. The differences among the various modules consists in the number of heaters, the functions available and the operating philosophy. Thus there is an optimal module for each use case.

Mechanical and electronic construction

Cherry cooktop controls distinguish themselves especially through their modular, freely-configurable construction. The hardware and firmware equipment of each module can be adjusted to suit customer requirements. This individual programming permits, e.g. instead of the control of a heater, the realisation of a two-zone switch or a timer. Another innovation is the new fastening concept. With snap-in technology, the Cherry controls can be fastened into the cooktop easily and without screws.

Portfolio overview



	Configuration		
Number of heaters	Basic	Standard	Comfort
1 or 2	MM3	MM2	-
3	SCM I SCM Quattro SCM V	SCM V SCM EL SCM II	-
4	SCM I SCM Quattro SCM EL SCM UL	SCM V SCM EL SCM II	SCM III SCM VI
5	SCM II	SCM III	SCM III
6	-	SCM III	-



As individual as you: the cooktop design

SCM I

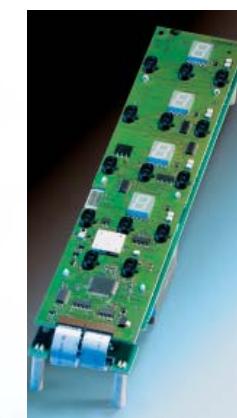
Product description:

- Main sensor for switching the cooktop on and off
- Locking sensor prevents unintentional operation, e.g. by children playing
- Operation time limit depending on the heat setting selected
- Detailed fault code display
- Can be used with all popular types of vitroceramics
- Acoustic input acknowledgement, can be switched off
- Acoustic fault indication, can be switched off
- Standard operation: one local main sensor and one +/- sensor
- Lean operation: one +/- sensor plus if necessary an additional zone sensor
- Integrated, freely-assignable dual/triple zone switch for up to three heaters
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Demo mode with switched-off relay, for risk-free demonstration of functions

- Options:**
- Heat setting display
 - Position of the sensors for two/three zone switch freely selectable
 - Communication with pot/pot size detection, optional
 - OEM-specific relay cycle times
 - Environmental temperature monitoring

Technical specifications

Operating temperature	0°C to +85°C (105°C on request)
Mains voltage	230/240 V, 400 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 9 relays for various zones max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones



SCM I

SCM II

Product description:

Enhancement of the proven variant SCM I.

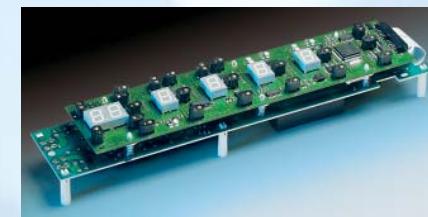
- Available for up to 5 heaters or alternatively 4 heaters with timer function (interval timer / switching off the heater)

Options:

- „Timer“ variant available as interval timer, timer assigned permanently to a heater, timer which can be assigned to any heater at a time
- Three-zone switch and/or two-zone switch possible
- Infrared interface (diagnosis and programming interface for the cooktop manufacturer)
- Operation possible with 2 sensors (lean) or 3 sensors (standard)

Technical specifications

Operating temperature	0°C to +85°C (105°C on request)
Mains voltage	230/240 V, 400 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 9 relays for various zones max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones



SCM II horizontal (Lean)

SCM III

Product description:

With this touch control, a new operating interface was created for the user. The position of the operating elements corresponds to the arrangement of the zones on a cooktop and permits intuitive operation of up to five heaters and timer.

- Main sensor for switching the cooktop on and off
- Locking sensor
- Detailed fault code display
- Can be used with all popular types of vitroceramics
- Two sensors per heater (lean operation)
- Integrated, freely-assignable dual/triple zone switch for up to four heaters
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Demo mode with switched-off relay, for risk-free demonstration of functions
- Programming mode for selection of start-to-boil, pot/pot size detection and acoustic acknowledgement
- Operation time limit depending on the heat setting selected
- Integrated test mode for the OEM

Options:

- Control available for horizontal mounting
- Position of the sensors for dual/triple zone switch freely selectable
- Communication with pot/pot size detection, optional
- OEM-specific relay cycle times
- Ambient temperature monitoring/safety cut-off
- 6th heater or timer function
- „Timer“ variant available as interval timer, timer assigned permanently to a heater, timer which can be assigned to any heater at a time
- Infrared interface (diagnosis and programming interface for the cooktop manufacturer)
- Warming zone switch



SCM III

Technical specifications

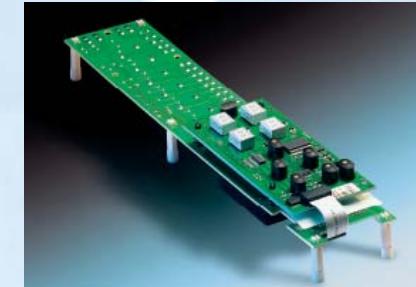
Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230/240 V, 400 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 9 relays for different zones, incl. warming plate, max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones

SCM Quattro

Product description:

Compact basic model of the SCM series for 4 heaters and max. 2 additional zones. The cooktop displays are arranged geometrically like the zones, which enables the user to assign them quickly.

- Main sensor for switching the cooktop on and off
- Control of up to four heaters
- Heater selection via toggle sensor
- Locking sensor
- Can be used with all popular types of vitroceramics
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Operation time limit depending on the heat setting selected



SCM Quattro

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230/240 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 6 relays for zones, max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones

SCM V

Product description:

- Main sensor for switching the cooktop on and off
- Control of up to four heaters
- Direct heater selection via one selection sensor per heater
- Locking sensor
- Can be used with all popular types of vitroceramics
- Integrated, freely-assignable dual/triple zone switch for up to four heaters
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Demo mode with switched-off relay, for risk-free demonstration of functions
- Operation time limit depending on the heat setting selected

Options:

- Control is available for horizontal and vertical mounting
- „Timer“ variant
- Interval timer, each heater can be assigned freely
- Warming zone switch
- Warming zone function for all heaters
- Stop-and-go function for brief interruptions of cooking

SCM EL (Entry Level)

Cost-effective single-board variant of the SCM V, for central front operation.

Product description:

Identical in all functions to the SCM V

Options:

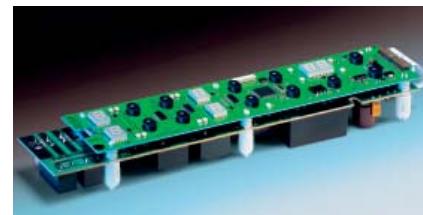
Mounting possible only centrally, otherwise see SCM V

Technical specifications:

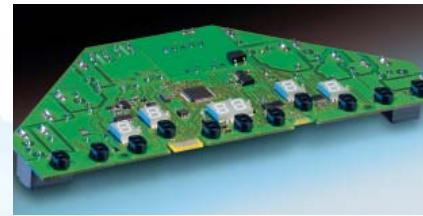
See data for SCM V.

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230/240 V, 400 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 9 relays for various zones max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones



SCM V



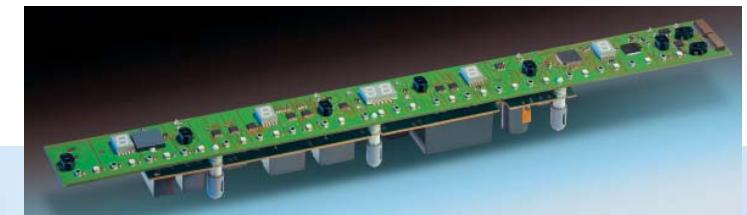
SCM EL

SCM VI

Thanks to the especially comfortable operating concept, using the SCM VI is intuitive for every user. The selection of heater and heat setting occurs with a single fingertip.

Product description:

- Slim-line design for horizontal front mounting
- Main sensor for switching the cooktop on and off
- Control of up to four heaters
- Direct simultaneous heater selection and operation via one slider per heater
- Locking sensor
- Can be used with all popular types of vitroceramics
- Integrated, freely-assignable dual/triple zone switch for up to four heaters
- Automatic start-to-boil option
- Calculated residual heat display
- Operation time limit depending on the heat setting selected
- Switching mains voltage with wide-range input and stand-by < 1W
- Programming mode



SCM VI

Options:

- Main relay (full isolation of the load from the mains)
- „Timer“ variant with five timers, can be used as interval timer. Each heater can be assigned any timer
- Stop-and-go function for brief interruptions of cooking

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230/240 V, 400 V, 50/60Hz
Approval	VDE ÜG
Relays	max. 8 Relais für verschiedene Heizkreise max. 2 Relais für allpolige Netztrennung, 230 VAC/16A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones

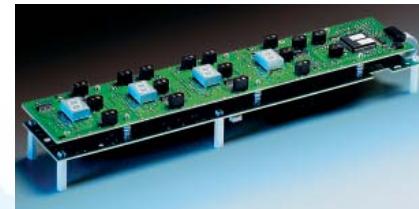
SCM UL (US Version)

Product description:

- Main sensor for switching the cooktop on and off
- Locking sensor
- Detailed fault code display
- Can be used with all popular types of vitroceramics
- Acoustic input acknowledgement, can be switched off
- Acoustic fault display, can be switched off
- Integrated, freely-assignable dual zone switch for up to three heaters
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Demo mode with switched-off relay, for risk-free demonstration of functions
- Operation time limit depending on the heat setting selected
- Integrated test mode for the OEM

Options:

- Control is available for horizontal and vertical mounting
- Position of the sensors for two/three zone switch freely selectable
- Communication with pot/pot size detection, optional
- OEM-specific relay cycle times
- Ambient temperature monitoring/safety cut-off
- Module height 38 mm



SCM UL horizontal (Standard)

Technical specifications

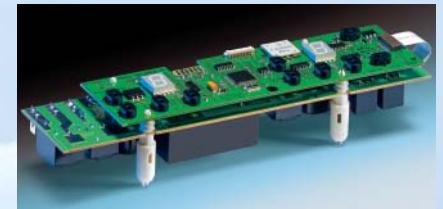
Operating temperature	0 °C to +85 °C
Mains voltage	208 V, 240 V, 60 Hz
Approval	UL
Relays	max. 6 relays for various zones
Connectors (Faston 6.3 mm) for	mains voltage and zones

Multi-Module

Multi-Module II

Product description:

- Control of up to two heaters
- Main sensor for switching the cooktop on and off
- Locking sensor with LED display
- Local I/O sensor
- Fault display
- Can be used with all popular types of vitroceramics
- Safety cut-out (in case of permanent sensor operation)
- Power failure by-pass
- Acoustic input acknowledgement
- Three sensors per heater possible
- Automatic start-to-boil option
- Calculated residual heat display with storage after power failure
- Operating time limit



Multi-Module II

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	208 V, 240 V, 50/60 Hz
Approval	VDE ÜG
Relays	max. 6 relays for zones, max. 2 relays for all-pole disconnection from the mains, 230 VAC/16 A optional
Connectors (Faston 6.3 mm) for	mains voltage and zones

Cooktop controls

Multi-Module III

Product description:

- Depending on the variant, control of one or two heaters
- Main sensor for switching the cooktop on and off
- Fault display
- Can be used with all popular types of vitroceramics
- Safety cut-out (permanent operation)
- Power failure by-pass
- Three sensors per heater possible
- Automatic start-to-boil option
- Integrated calculated residual heat display
- Operating time limit
- Control available for horizontal mounting
- Heat setting display one-place 10 mm
- Two-zone switch for a heater with LED display, optional
- Communication with pot/pot size detection, optional
- Ambient temperature monitoring, optional

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230/240 V, 50/60 Hz
Approval	corresponds to VDE guidelines
Relays	max. 3 relays for zones
Connectors (Faston 6.3 mm) for	mains voltage and zones



Multi-Module III



Multi-Module in laboratory

Selection table cooktop controls

	Overview of cooktop controls									Overview of Multimodule	
	SCM I	SCM II	SCM III	SCM Quattro	SCM V	SCM EL	SCM VI	SCM UL	MM2	MM3	
Heaters without timer max.	4	5	6	4	4	4	4	4	2	2	
Heaters with timer max.	—	4	5	—	4	4	4	—			
Timer function optional*	—	1/2/3	1/2/3	—	3	3	1, 4	—			
Zone switch (2-/3-zone) optional	2-zone	2/3-zone	2/3-zone	2-zone	2/3-zone	2-zone	2/3-zone	2-zone	2/3-zone	2-zone	
Buzzer	x	x	x	—	x	x	x	x	x	—	
Operating time limit	x	x	x	x	x	x	x	x	x	x	
Start-to-boil	x	x	x	x	x	x	x	x	x	x	
Residual heat display	x	x	x	x	x	x	x	x	x	x	
Locking function (child proof feature)	x	x	x	x	x	x	x	x	x	—	
Operating variants	Lean / Standard	Lean / Standard	Lean	Toggle-selection	Direct-selection	Direct-selection	Direct operation	Standard	Lean / Standard	Lean	
Heater display	13 mm	13 mm	13 mm	10 mm	10 mm	10 mm	10 mm	13 mm	13 mm	10 mm	
Fully-automatic Sensor calibration	x	x	x	x	x	x	x	x	x	x	
Pot detection optional	x	x	x	—	x	x	x	x	x	—	
IR service interface optional	—	x	x	—	—	—	—	—	—	—	
Serial interface	x	x	x	x	x	x	x	x	x	x	
Programming mode	x	x	x	—	x	x	x	—	x	—	
Cooktop test mode	x	x	x	—	x	x	x	x	x	—	
Demo mode	x	x	x	—	x	x	—	x	x	—	
Mounting position	vertikal	horizontal	horizontal	vertikal / horizontal	vertikal / horizontal	middle	horizontal / Slimline	vertikal / horizontal	horizontal	horizontal	
Optional relay to fully-isolate load from the mains	x	x	x	x	x	x	x	x	x	—	
Approval	ÜG (VDE)	ÜG (VDE)	ÜG (VDE)	ÜG (VDE)	ÜG (VDE)	ÜG (VDE)	ÜG (VDE)	UL	ÜG (VDE)	**	

* Timer functions:

1. As interval timer (buzzer tone)
2. Assigned permanently to one heater (switching)
3. Assignable to various heaters (switching)
4. One timer assignable per heater (switching)

** Prepared for approval in connection with cooktop

Pot detection

The pot/pot size detection is based on the inductive principle. The sensors of the control detect precisely and with stable temperature the smallest changes in inductivity, caused just by the setting-down or removal of pots and pans. When setting down on a two or three-zone heating element, the control also detects the pot diameter and adjusts the heat diameter to the pot or pan automatically. This patented process is not just comfortable; it also helps to reduce energy consumption and ensures greater safety when cooking. Up to 16 cooktop configurations can be stored in the control's memory, which makes the module universally applicable.

- Opto-coupled serial interface for communication with cooktop
- Connection of up to 6 heaters equipped with inductive pot detection sensors
- Sensor connection with cost-effective „twisted-pair“ cabling and RAST 2.5 contacts
- Open communication protocol
- Programmable detection switch thresholds for all common heating elements with inductive pot detection sensors
- „Ready to Use“ with the Cherry standard comfort modules SCM I, SCM II, SCM III, SCM VI as well as the Multi Module MM II



Electronic pot detection

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230 V, 50/60 Hz via integrated mains adapter, optional 400 V or external DC supply
Approval	Corresponds to VDE guidelines
Interface	Serial, galvanically uncoupled

Zone control

Dual/Triple Zone Switch

The zone switch was developed for multi-zone heating elements. The module is used in connection with rotary selection switches. The zone switch is activated with an additional contact on the rotary selection switch. After there is mains power, the module conducts a basic calibration. During operation, the IR sensor adjusts itself automatically to changing light conditions. By activating the sensor, an additional zone is switched on or off. With a three-zone cooking zone, first the middle and then the outer zone is activated by activating the sensor repeatedly. If it is activated again, then first the outer and then the middle zone is deactivated again. Faulty operation is detected by the implemented software and prevented.

Possible variants for a cooktop

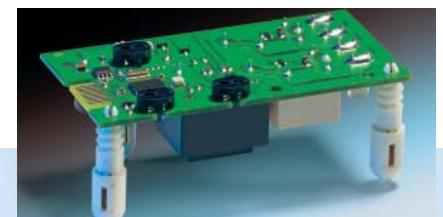
- Dual zone switch
- Triple zone switch
- Combinations and other versions on request.

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C for short periods)
Mains voltage	230 V, 50/60 Hz, optional 400 V
Approval	VDE ÜG
Relays	2 relays for 6.3 A at 230 V (3.3 A at 400 V)

Warming zone switch

This module enables the complete control of a warming zone in a combination or touch cooktop. If the warming zone control unit is activated, it is switched on by touching the zone sensor. Light-up displays provide the user with clear information about the selected operating state. Another comfort feature of this control is the detection and prevention of faulty operation with the corresponding software.



Warming zone switch

The module also has an individual residual heat display: this function calculates the residual heat and displays it independently, that is, even after the cooktop is switched off. An operation time limit switches the warming zone off automatically after 8 hours of continuous operation for safety reasons. The warming zone control is fully isolated from the mains, has a low standby consumption (< 1 W) and corresponds to the latest specifications. The module is delivered with the new snap-in fastening technology, which enables screwless mounting in your cooktop.

Technical specifications

Operating temperature	0 °C to +85 °C (105 °C on request)
Mains voltage	230 V, 50/60 Hz, 400 V on request
Approval	Confirms with standard EN 60335
Relays	1 relay for 10 A at 230 V

Connectors (Faston 6.3 mm) for mains voltage and zones

Touch control oven control

Modern ovens are increasingly becoming a key design element in the kitchen. The use of touch control technology enables a completely smooth surface without holes for rotary knobs or push buttons.

Product description:

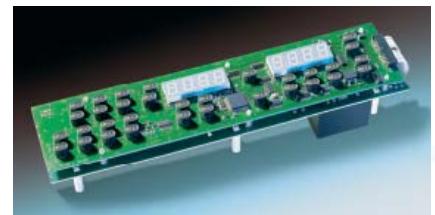
- Main sensor for switching the oven on/off
- Lock sensor for locking the selected settings or as a child safety measure
- Time display with the functions real-time clock, interval timer, cooking time and stop time display
- Switch-off functions
- time controlled at the end of a defined cooking time or on reaching of a defined stop time
- temperature controlled after reaching a defined temperature inside the food being cooked
- Temperature display for displaying the set and actual temperatures for the oven and the food being cooked (food thermometer temperature)
- Main relay for full isolation of the loads from the mains
- Fan relay for the temperature-dependent control of a cooling fan
- Function sensors for seven configurable operating modes
- Switch relay for seven selectable loads
- Faults and incorrect operation evaluation with safety cut-off
- Acoustic signals

Options:

- Reduction in functionality by lower fitment levels possible (e.g. no food thermometer function or individual function sensors)
- Selectable locking of any relays with respect to one another
- Multiple control of relays
- Maximum temperature and suggested temperature selectable
- Switch-on and off temperature of the cooling fan for the oven area selectable
- Ambient temperature monitoring/safety cut-off



Glass front plate



Touch control oven control

Technical specifications

Operating temperature	0 °C to 85 °C
Mains voltage	230 VAC, 50/60 Hz
Relays	1 relay for all-pole disconnection from the mains 230 VAC/16 A optional 1 fan relay for cooling of the oven area 7 relays for various applications 230 VAC/10A
Connectors (Faston 6.3 mm) for	mains voltage, function elements, and temperature sensor
Approval	VDE

Customer-specific product solutions

On customer command, in addition to touch controls, Cherry develops and manufactures controls and complex mechatronic modules for the most applications. With our extensive, in-house expertise in mechanical engineering, electronics, software and hardware and plastic technology, Cherry can offer its customers complete mechatronic solutions from one source. Below are a few examples of the most various solutions which we have produced. Cherry is available to you as a development supplier for customer-specific products.



Wireless remote control and receiver for sink heater



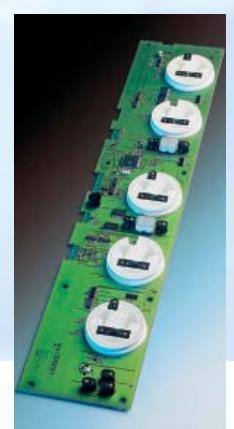
Input and output panel for tumble-dryers



Injection-moulded 3-dimensional stamping grid as a component carrier for a sidedoor-latch



Tumble-dryer control



Cooktop control



Automatic gearshift module including position detection



Electronic control unit for an electrically-operated car trunk

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